The JOURNAL of AIR LAW and COMMERCE

Volume XXIII

1956

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PUBLISHED BY
THE TRANSPORTATION CENTER
AT
NORTHWESTERN UNIVERSITY
FOR THE
SCHOOL OF LAW AND SCHOOL OF COMMERCE
Evanston, Illinois

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Published By

THE TRANSPORTATION CENTER

at

Northwestern University

for

The School of Law and The School of Commerce

The Journal of Air Law and Commerce prints matter it considers worthy. However, publication does not necessarily imply agreement with the opinions expressed.

Vol. 23 **WINTER, 1956** **No. 1**

Published Quarterly by The Transportation Center: Winter, Spring, Summer, Autumn. Subscription price per year: United States, $6.00; foreign $6.75. Single copies of current issues $1.75.

Subscription and business inquiries: Address—1818 Hinman Avenue, Evanston, Illinois. Editorial inquiries: Address: The Editor-In-Chief—1700 K St. N.W., Washington 6, D.C.

B. F. Stevens & Brown, Ltd., 28-30 Little Russell St., London, W.C. 1, England, agents for subscriptions in pounds sterling.

Entered as second class matter September 26, 1947 at the post office at Chicago, Illinois, under the Act of March 3, 1879.

Copyright 1956 by JOURNAL OF AIR LAW AND COMMERCE

THE JOURNAL OF
AIR LAW AND COMMERCE

Vol. 23 WINTER, 1956 No. 1

AIRPORTS FOR JETS — A FEDERAL VIEWPOINT

By Charles J. Lowen

Administrator of Civil Aeronautics, U. S. Department of Commerce.

WITH the first announcement by manufacturers that jet aircraft were being designed for use in commercial air traffic, the Civil Aeronautics Administration inaugurated an immediate program of detailed study of the possible effects of this type of aircraft upon airways, airports and our overall objective of maximum air safety.

Even while civil jets were in the prototype stage, engineers from our Office of Aviation Safety were sent abroad to the factories to study the design and operating characteristics of the aircraft. Based upon the data they accumulated, simulated air traffic control problems which we felt sure would be created by the introduction of this type of aircraft were undertaken at the Technical Development Center at Indianapolis and were successfully resolved. Our Office of Federal Airways also made intensive studies, based on which we recently submitted to the Congressional appropriations committees a 5-year airways plan, which will increase the capability of our traffic control system for handling the oncoming jets.

In January, soon after assuming the office of Administrator, I presided over a symposium in which all areas of the industry participated for a complete and frank appraisal of the many problems which the introduction of jet transports would create in relation to airports.

All who participated have felt that definite progress was made in arriving at possible solutions to the anticipated problems. I believe that the best service the CAA can render in connection with these airport problems is to serve as a catalyst, bringing together the people best qualified to deal with specific phases, and thus, one by one, attack and solve them. This is the status today.

An important fact gathered from the symposium is that the jet aircraft, insofar as its relations to the airport are concerned, is not a particularly unique or different thing. It is bigger, heavier, and faster than the conventional aircraft with which we are dealing today, and these are the characteristics which will produce most of the problems

of the CAA, the operator of the airport and the air carrier in putting it into service.

Nor are these problems extremely difficult to approach and settle. We have a tendency in this country to use a dash of hysteria about any new development, and there are writers who inaccurately have built up the threat of the jet. There was no such attitude at our meeting, and none of the CAA specialists working in their fields has developed any fever. These problems will be accepted and solved in stride by all concerned, I am convinced. In this connection, we should remember that manufacturers of the two proposed pure jet transports tell us they will not be operating for almost four years, and thus we have time to prepare carefully rather than desperately.

Any new plane presents its own special demand for ground facilities, and, since new transports usually are larger, the runway requirements may need revision upward. This may be the case with jet transports. It was a subject of serious moment at the January meeting. A representative of the Airport Operators' Council reminded aircraft manufacturers and aircraft operators that taxpayers are pressed by demands for school money, for roads and streets and many other facilities, and said they would not approve more airport bonds. He said the necessary additions to runways could be had if demanded, but that additional charges for airport use by the carriers must be made to defray their cost.

We were told by the manufacturers that not every airport would need runways long enough for operation of jets at full load. For intercontinental flights the maximum, which they estimated at 9600 feet for sea level and standard temperature, would be required, but "if they want to operate the way they are today with present aircraft, they would probably not need more runway."

The amount of fuel needed on a given jet hop, as well as the length of runway required, is a function of the length of the flight. These proposed jet transports will carry 125,000 to 140,000 pounds of fuel when loaded for their longest hops and much less, of course, for shorter hops. It is probable that several existing airports are ready for jets with their present runway facilities.

Route Structure to Be Determined

The route structure of the air carriers that use jets will have to be determined before we can be sure what airports, if any, will need enlargement. While ideal hops in the medium-range jet would be 1,000 to 1,800 miles, it was indicated at our conference that there certainly would be jet service between major cities which lie 600 to 800 miles apart, and at the other extreme we would have intercontinental jets flying 4,000 miles. Another suggestion was that such hops as New York to Washington and then to the West Coast would be one pattern of jet service. Today, many pairs of cities which now have non-stop air service lie in the 1,000-1,800 mile bracket, and they

are scattered about the country. Only when the air carriers know on what routes they are going to use jets can we be definite about the totality of airport needs. The Federal Aid Airport Program will assist local sponsors with their airport problems.

It was pleasantly surprising, too, for us to learn that the prototype of one of the proposed jet transports now being flown is taxied up to the loading ramp under its own power and taxied away with its new load, and with no difficulty, according to the manufacturer. There has been much discussion about bringing a fire- and heat-blowing aircraft this close to an administration building and operating it on a crowded ramp. There is the distinct possibility that this anticipated problem will not bother us.

Noise and Fuel Problem

Noise, however, is going to be a problem. Manufacturers said they had reduced the noise for passengers inside the plane, and that a reduction of external noise of jet engines might be as much as 18 decibels with luck. In the case of the J-57 engine, this would mean something equal to or less than the level of the DC-6B. Noise of airplanes approaching and leaving a big city airport is a constant problem of the CAA. There was some opinion that the high speed of the jet and its fast climb gets it out of hearing range of the people on the ground very soon, and this does not disturb as much. This is hopeful, but the problem of the noisy plane is not yet solved.

Other airport problems brought by the jets will concern the facilities at airports, and for these, provision must be made. One of these new planes will carry 23,000 gallons of fuel as a full load. That's equal to two railroad tank cars. In addition, a jet transport may load as much as 4800 pounds of distilled water for use in increasing its power for takeoff. What are the demands on airport design and construction of this new and larger fueling and fuel storage requirement? This is a good example of the far reaching nature of jet problems, since it concerns the CAA, the airport management, the fuel company, and the air carrier. Undoubtedly, the CAA will bring representatives of these groups together for a detailed attack on this problem.

The effect of heat blast and spilled fuel on airport pavements will also be a problem. The military has not found heat blast on concrete to be of any serious effect, but spilled jet fuel can have a bad effect on some paving, especially in places where planes are serviced or stored.

Pavement strength must be considered when these new planes, weighing between 250,000 and 300,000 pounds gross, come into service. Again, not every airport will be called upon to accommodate them fully loaded, but some will. Weight distribution will be different, however, and will affect the problem. Instead of a single wheel, the landing gear of a jet transport will be four wheels, in dual tandem formation, as we are told by the manufacturers, and this configuration

enlarges the plane's "footprint" and spreads the weight far more than a single wheel. CAA engineers say that many, perhaps even most of our major airports now have paving of adequate strength under these conditions to accommodate the new planes. Moreover, paving breaks down slowly — over a period, usually, of two years — and this again gives us time to take any necessary remedial action. A fairly thin overlay of two or three inches of paving serves to increase strength, and this obviates the necessity in many cases of building an entirely new runway.

The impression remaining after the meeting was that the jet will bring new problems, but not of such nature, nor of such volume that they will produce a crisis. The feeling was general that the whole industry as well as Government is approaching the "jet age" with confidence and no real worry.

AIRPORT PLANNING AND JET TRANSPORTS—THE OPERATORS' VIEWPOINT

By E. Thomas Burnard

Executive Director, Airport Operators Council, B.S., Univ. of Pennsylvania, Wheaton Sch. of Finance and Com. 1938; LL.B., Univ. of Pennsylvania Law School, 1941. *Formerly*, Chief, International Standards and Domestic Regulations, Air Transport Association, Operations Department, 1948-55.

IN RECENT MONTHS, forty-one airlines have announced orders for at least 672 turbine engine transports to be delivered by 1959-1961, the total value of which is placed at over a billion dollars. Many of them, the turbo-prop transport types such as the British Viscount and the Lockheed Electra, are in service or will be in service considerably before then. The firm orders for the 120 to 160 passenger DC-8s and Boeing 707s exceed 190. There are at least 35 additional Boeing 707s and Douglas DC-8s on which options are held and which will probably round out the total long-range jet fleet by most of the world airlines. Shorter range DC-9s, Convair "Skylarks" and a smaller 707 have just been announced by the manufacturers. These new aircraft have been ordered by airline officials during the last several months at an unprecedented rate. They are expected to be the work horses of the airlines from 1960 until approximately 1975.

Jets Announced Without Advance Planning

Most of these new aircraft of the larger types are reported to require longer and stronger runways than have been built in the past, particularly when used on long hauls. Manufacturers and airlines have given assurances that noise suppressing devices will be perfected for civil use, because without them, the jets are a noisier type of airplane than current piston engine planes. They are expected to require new and additional ground handling facilities, and in a number of other ways require modification of airport facilities if they are to be used to the fullest economic advantage to their airline owners.

A DC-7C, by contrast with the contemplated jets, carries approximately 60 people and has a gross weight of approximately 140,000 pounds. This is one of the "biggest" planes flying today from our commercial civil airports. The new larger jet transports are expected to operate at 250-300,000 pounds gross weight and will carry at least double the number of passengers.

Some idea of the impact of these new and larger types of aircraft can be obtained by imagining that the operators of the intercity busses that serve your community have just announced that the busses are to be doubled in size within the next 3-5 years; that they will be nearly

twice as fast and that they will burn diesel fuel instead of gasoline; that your principal city streets will have to be widened and strengthened in order to accommodate them; and that whether you ride the busses or not, you, the taxpayers, will be expected to contribute your share to getting the streets ready for these new busses.

Imagine further that this announcement is made by the bus company, without prior consultation with or permission by those responsible for city planning. And then imagine that the city planners are asked: Will your city be ready for these new busses by 1959 or 1960?

The airports of this country, for the most part, have been built by public funds estimated at over $3 billion and are owned and operated through some form of local government or an instrumentality thereof. These range in type from an integral part of a city or municipal department (such as the Department of Public Works), through semi-independent organizations, agencies or instrumentalities such as a Park Board or Commission; a two-city Joint Commission; a joint County Board; a Port Commission; a Port Authority; a bi-state agency; or an independent airport authority. In each case, however, no matter what the degree of independence from political control or lack thereof, the airport operator is nevertheless operating a publicly provided facility for which it is responsible to the public for efficient operation.

It is these bodies, which own and operate most of our nation's airports, that have read in the press for the first time in recent months, that the airport planning that they have been doing, based upon agreed federal government standards, may soon be obsolete.

The management of the nation's airports have contributed greatly to the tremendous progress of aviation to date, and many of the individuals have pioneered in this field along with the pioneers in the airlines. It is the foresight and planning of these airport management organizations, who through many lean years of trying to get local public support for their airport development and federal support for the integration of these airports into the national transportation system, that have made possible the tremendous increases in revenue passenger miles flown by the airlines in the last decade.

The Airport Operators Council represents nearly all of the 22 "large air traffic hubs" and about half of the 39 "medium air traffic hubs" of Continental U. S. plus the principal international airports at Hawaii and Puerto Rico. These Airport Operators Council member airports handle nearly 75% of the nation's scheduled enplaned passengers and about 95% of the enplaned scheduled overseas and international. They have work in process or definite future plans for approximately 500 million dollars of airport development based upon anticipated growth of air traffic before the jet transport announcements.

Developments planned for some of the larger type of airports range from $100 million at an airport such as New York's International, and $59 million at Los Angeles to expansion programs of $33 million at Minneapolis-St. Paul, $12 million at Atlanta, $10 million at Miami,

$8 million at Cleveland, $7 million at Columbus, $14 million at Dallas, $5 million at Houston, $10 million at Kansas City, $7¾ million at St. Louis, $11 million at San Francisco, over $8 million at Portland, and so on across the nation. Based upon the apportionment of Federal Airport Program funds to date, these cities can expect about $1. Federal to $3. local. The local funds include, of course, airport revenues as well as funds from local taxes.

These plans, it must be remembered, have been made on the basis of existing standard orders of the Federal Government and on the basis of traffic growth estimates which come for the most part from Federal Government sources. Because of these extensive and well-laid plans, the announcements of the new large type jet transports, which may not conform, raise many questions.

Technical Solutions Needed First

It is doubtless true that the jet transports will expedite commerce and trade throughout the world. The airplane, more than any other vehicle devised by man, is capable of going more places and stimulating trade than anything since the creation of the boat or the wheel. The trade and communications lines made possible by the airplane reach farther and farther into the hitherto unknowns of the earth's surface, and the potentials to be developed as a result thereof defy the human imagination.

Yet, notwithstanding this romantic thought, it is axiomatic that air commerce grows in proportion to the other aspects of economic growth at the trade centers of our country and of the world, and before these centers can be served with jet transports there are many serious technical, financial, legal, and community relations problems which must be solved. The technical solutions must come first and these are to a very large degree the responsibility of the airframe and engine manufacturers and the airline operators.

For instance, the matter of noise is one for which the manufacturers are best suited to find solutions; and the airlines, as the operators of these noise-producing machines, must insist upon acceptable solutions if they are to be operated into airports near our densely populated metropolitan areas. Both the manufacturers and the airlines recognize this problem and are doing a great deal to solve it.

Next is air traffic control, which has been talked about, thought about, and discussed at great lengths for years in government and industry circles, and although there is currently promising talk about some solutions just around the corner, antiquated air traffic control procedures may yet be the greatest limiting factor on the economic use of the jet airplane.

Jet fuels are of several types on which the industry has yet to finalize. The volatile properties of these fuels differ and will, to a large extent, determine the type of ground facilities which will be needed to handle them. The huge quantities of fuel required by these new

aircraft also require a complete redesign of fueling facilities and procedures.

Jet blast, both heat and velocity, can do serious damage to property and cause injury to personnel unless adequate protection or adequate precautionary measures are taken. This, too, is a field about which the aircraft manufacturers and airline operators must learn a great deal more.

Runway length and strength requirements are something also on which the manufacturers and the airlines must complete a great deal of work. Currently, the airline operators and manufacturers are seeking changes in the federal performance standards applicable to the new types of jet aircraft, the determination of which will greatly influence the runway requirements. And, of course, the ultimate official determination of runway requirements will not be made until the CAA issues a Certificate of Airworthiness for individual aircraft, and authorizes the inclusion of these aircraft on the airline operators' Operating Certificate. And after that has been accomplished, the airline still has the flexibility of adjusting payloads and fuel loads to conform with available runways.

Not the least of the many problems of a technical nature which the airlines must answer relate to the handling of enplaning and deplaning passengers, and their baggage. Most air passengers have had their moments of serious aggravation while trying to check in for a flight of perhaps a DC-6 or 7 or even a Convair, and most of us have experienced even greater exasperation in trying to get our baggage from a flight on a plane of conventional dimensions. Imagine, therefore, doubling the number of passengers who are seeking to check in for a particular flight, or who are trying to get their baggage after arrival. At ports of entry additional problems will arise when the customs, immigration and health services are confronted with clearing the passengers from many of these new-sized aircraft—particularly when they arrive simultaneously. Those of you who have experienced attempts to get clearance in the past will have some idea of the kind of problems which exist for the future.

These are some of the technical problems, along with many others, which must first have solutions from the airlines or the manufacturers before the airport planners can even begin to draw the blueprints to accommodate the facilities which will be needed.

Financial Problems

The taxpayers insist, in most communities, that their airports be made self-sufficient. In order to do this, airport management has gone to great lengths (some people say too far) in developing "non-aviation revenues." These are the revenues from the taxicabs, the limousines, the restaurants, the bars, the snack shops, the gift shops, the haberdasheries, the bank, the drug store, the coin machines, the game rooms, the nurseries, the rental cars, the insurance machines, the display cases, the observation deck turnstiles, and the myriads of other things

at our air terminals. These have been developed largely because the aviation users of our airports have insisted that the expense of the airport should be spread over all users and activities at the airport. Yet, even with all these measures, most airports do well to break even on their operating expenses, and rare is the airport that can break even or turn a profit if the amortization of its capital investment and its debt service, are taken into account.

Thus, although the airport management uses every device possible to produce revenue, it must still go to the taxpayers in most instances to obtain the capital to make the improvements to keep up with the growth of air transportation.

These appeals to the taxpayers normally are in one of two forms. The traditional and most popular form is that of general obligation bonds of the community, proceeds of which are used for capital improvements of the airport. These bonds pledge the resources of the municipality and although highly desired by bond buyers, are not as popular with the taxpayers who must assure their payment.

The second type—the airport revenue bond—is receiving much more attention in communities because the taxpayers are saying in effect that the airport revenue must pay off the bonds which they underwrite. This type of bond cannot be issued until feasibility reports show that the airport is capable of paying it off. Consequently, airport management must show the methods by which it expects to produce revenues which will assure the payment of these obligations.

Bank loans for short term capital improvement programs provide another source of financing, which again can be obtained only upon a showing by the airport management that it is capable of paying off these loans in accordance with the terms thereof.

Another form of financing is that of tenant financing by prepaid rentals. In this case, a tenant, such as an airline, may elect to finance the construction of a hangar which it will put up with its own money, with perhaps ground rental fee to the airport operator. By the terms of most agreements the building at the end of a period of time, such as twenty years, will revert to ownership by the airport. But, in the meantime, of course, the tenant has the exclusive use thereof on terms which are spread out over the long term agreement.

Legal and Community Relations Problems

On the purely legal side, are many problems related to acquisition of land by condemnation or negotiation for airport expansion; the rights of the federal government in many of our airports which preclude certain types of development, expansion, or modification; and the rights of adjoining land owners or those in the immediate vicinity who may consider that their property is being trespassed or that their right to quiet enjoyment is being violated by aircraft flying over their land. This is a field of law which is as yet unsettled, but there are

scores of cases which have arisen and will no doubt continue to arise in this field.

And last, but not least, is that matter of community relations. Major airports throughout the country are faced with this type of problem where the increase of air traffic alone will be enough in some communities to put the situation in a very precarious position and where the premature introduction of jet aircraft without noise suppressing devices could be just enough to break the camel's back and to render useless the public facility which has been built up over many painstaking years with many millions of taxpayers' dollars.

Conclusion

The question, "Will the airports be ready for the jet age?" can be answered only by asking the manufacturers, "Are you doing everything you can to make these aircraft acceptable to the community?"; and by asking the airline operators "Are you doing everything you can to assist the airport operators in providing facilities for future aircraft?"

It is only the fullest cooperation by the manufacturers, the airline operators and the airport operators, as well as the Federal government, that will assure that the aircraft and airports of the jet age will best serve the public interest.

AIRPORT PROBLEMS OF THE AIRLINES

By R. W. Ireland

Vice-President—Traffic of United Airlines. *Formerly* U. S. Army Engineers' Office, 1913-1921. Secretary of the War Department Subcommittee, House Committee on Appropriations 1925-1926.

IN considering the relationship between airport and airline managements, it should be remembered that the airlines comprise only one classification of users of our major airports. Many people lose sight of this fact—sometimes even airport operators when considering sources of revenues for maintenance and operation of such facilities. The fact is that private and corporate aircraft and military planes take up a substantial percentage of the capacity of many of our airports. Records of the Air Transport Association show that on 180 of our busiest civil airports, the air carriers account for only about 30 per cent of the total operations. This percentage, of course, varies substantially as between airports.

It must be admitted, however, that the requirements of the scheduled airlines, to a large extent, govern the minimum needs in essential airport features, e.g., length and strength of runways. In the main, any airport which meets airline requirements will serve the corporate and private aircraft operator and, to a large extent, the military as well.

Airline interest in airports logically divides into two major classifications: (a) layout of landing and terminal areas and related facilities, and (b) economics affecting airline use of these facilities.

Since this paper is intended to deal mainly with the second classification, I will mention only a few of the physical problems.

Runways, Terminals and Other Facilities

From the brick and mortar standpoint, there is no doubt but that increases in the use of air transportation and the size and efficiency of transport airplanes, have been much more rapid than improvements in the airports on which they are dependent. This has resulted in a continuing pressure for increases in size of airports and airport facilities, to permit the improved aircraft to provide the traveling and shipping public with the maximum service of which these planes are capable, and to produce a favorable economic result for the operator.

Parenthetically, the facilities problems and expense resulting from the rapid expansion in volume of air transportation are not confined to airport management but are shared by the carriers as well. In many cases in the last few years, the airlines have found it necessary to replace hangars and other buildings long before they were written off the books due to larger new airplanes which could not be handled in hangars built a few years earlier. This applies not only to hangars

but to working space for airline operations personnel and to loading equipment.

Runway lengths, of course, come first in the consideration of physical requirements. In this respect, some of our major airports are deficient for *today's* airplanes—not to speak of the jets, which are only three or four years away. The busiest airport in the world—Chicago Midway—is sub-standard for some of the planes now in regular use by the airlines—the DC-7, the Stratocruiser, and the Super Constellation. In some cases, payload must be cut as much as 4,000 pounds for these heavy aircraft operating non-stop to Pacific Coast points. Four thousand pounds is the equivalent of 20 passengers—a loss which affects revenues to the extent of over $1.00 per mile and which can well mean the difference between a good operation and a poor one, economically speaking. I don't think anyone can say with too much assurance just what runway lengths will be needed for the jetliners being ordered today. But it is safe to assume that many of today's airports will require substantial improvements to permit utilization of the maximum capabilities of the oncoming jets. Certainly, airports which are to accommodate these Queen Marys of the air should have no less than 8,000 foot runways, at sea level, which should be capable of expansion to at least 10,000 feet if future developments require.

While runway lengths (and strengths) are, without a doubt, the most important single airport ground facility affecting efficient utilization of the capabilities of present and soon-to-be-operated aircraft, there are many other physical features which have a bearing on the problem. For example, there are such things as elimination of intersecting runway patterns, more effective taxiways to eliminate the necessity for taxiing on runways, high speed taxi turnoffs to clear runways quickly for other movements.

Design of passenger and cargo terminals, too, has a substantial effect on the efficiency of airline operation.

Unfortunately, the airlines have not had much voice in the design of some of the existing terminals even though it would seem that, as major users, they should have a good deal of influence in the layout of such facilities. A part of their failure to do so can be charged to the airlines themselves, due to time required to get unanimity among the carriers as to what is required. A substantial part of the fault, however, has resulted from the desire of some municipalities to build monumental terminals, in the creation of which requirements for efficient airline operation were sometimes relegated to a subordinate position.

Fortunately, in the most recently constructed terminals, the airlines have been given more opportunity to make suggestions. Perhaps one of the most outstanding examples of cooperation between the airlines and the airport owner is O'Hare International Airport at Chicago. From the very beginning of the project, the City and the airlines have worked closely together in all phases of the construction.

Committees of airline engineers and other technical people have been given access to the planning of the City and have been encouraged to offer suggestions, many of which have been accepted.

User Charges at Airports

Any differences of opinion on technical design matters between municipal airport owners and the airlines have been mild as compared with their opposing points of view on the question of payment by the airlines of flight fees and other charges for the use of the airport and its facilities.

To understand fully the reason for this conflict in views, it is necessary to go back to the early days of air transportation when municipalities would "go all out" to obtain airline service. In many cases, in those early days, the airlines were charged little or nothing for the use of municipally owned airports. Hangars were furnished virtually rent-free and many other similar inducements were made to get airline service.

Much of the progress in the early lean days of air transportation can be credited to this constructive attitude held by many of the municipalities. As a result, the airlines understandably grew up with the philosophy that an airport is a facility for all the public, such as a harbor; that a part of the cost should be borne by public funds and not all be paid by users of the facility. A good argument can be made for such point of view, for which there have been ample precedents in waterway and harbor developments.

On the other side, municipalities have been faced with a severe airport problem arising from the accelerated growth of air transportation since World War II and a consequent need for more and better airports. Noting the fact that the airlines have produced profits, even though relatively modest ones, in the last few years, it is understandable that municipal managements feel an airport should pay its way and not be supported in part by municipal funds.

This conflict in philosophies has resulted in some protracted negotiations between airlines and municipalities. In a few instances it has been almost a case of an irresistible force meeting an immovable object, such as the Idlewild case where agreement was reached, after years of futile negotiation, only by the intervention of the Governor of the State of New York through the medium of an all-night session in a New York City hotel.

In addition to the basic problem of the amounts to be paid by the airlines for airport use, several collateral problems, closely allied with the basic one, have arisen in the last few years.

"Public Utility" Theory

A novel one, which was put forward by Corporation Counsel for the City of Chicago, relates to the so-called "public utility" theory under which the contention has been made that it is not lawful for

municipal authorities to make binding agreements covering airport user charges for a definite period of time; but that such charges must be fixed from time to time in the light of operating costs. Obviously such a proposition is distasteful to the airlines since, if valid, they could not enter into airport agreements with any assurance that they would remain effective for the specified term, which would make it difficult to justify the huge capital investments for hangars and other facilities which have to be made by the airlines at their major terminals. And, of course, it would affect the validity of existing agreements, some of which have many years to run. Fortunately, for the airlines' peace of mind, this principle recently was tested in the California Courts, which handed down a decision that municipalities do have authority to enter into long term airport agreements which, once made, are valid for the specified term. In addition, the Illinois Legislature at its last session clarified the power of Illinois municipalities to enter into long term airport agreements.

Gallonage Charges

Basically, it is the practice for airline contributions to the cost of airport operation to be made in the form of flight fees of a specified amount per landing or per thousand pounds of landing weight, plus, of course, rent for land for the erection of airline buildings (hangars, etc.) and payments for space in municipally owned terminals or other buildings on the airport. The principle of the flight fee charge is obviously an equitable one provided the rate is in proper relation to airline use of the airport. Some airport operators, howevers, in recent years have attempted, in addition, to assess a charge of so much for each gallon of the carrier's fuel pumped into its airplanes on the airport. This may sound like a minor item, but the airlines burn a lot of gasoline in a year. For example, United Air Lines last year used over 170 million gallons, so it can readily be seen that a charge of, say one cent a gallon—not the highest which has been proposed—amounts to a substantial sum of money. I think most carriers will agree that the cost of operating a fuel system is a legitimate part of the cost of airport operation, which must be met by the users. But a gallonage charge which bears no relation to cost of operation of the fuel system would seem to be no more nor no less than another fuel tax. Not the least of its defects is that it penalizes the long haul operator who must fill up his tanks at point of origin. Likewise, it results in avoiding fueling to the extent operationally feasible, at airports where such a charge is made.

Concession Revenue

Fortunately there has been growing appreciation of the necessity of designing airports and airport terminals so as to develop the maximum amount of revenue from sources other than the people who fly airplanes into and out of airports. Automobile parking areas, fixed

base operations for servicing non-scheduled aircraft, restaurants, bars and other concessions will, if properly developed, make a major contribution to the cost of airport operation with consequent reduction in the net cost. As an outstanding example, 1955 revenue from concessions at the Willow Run Airport in Detroit amounted to about 70% of the cost of operating the airport.

Capital Funds for Airport Construction

Until a few years ago, it was taken for granted that capital funds for the construction of airports and related facilities would come from general municipal funds, supplemented by Government grants in aid and in some cases by State appropriations. Recently, however, the pressing need for airport improvements coupled with tremendous increases in need for funds for other vital municipal facilities, such as streets, sewers, schools, etc. have brought forward the idea of obtaining capital funds for airports through the device of issuing revenue bonds, secured by revenues received from payments for the use of facilities constructed with the proceeds of the bonds. So far, very little airport financing has been done by this method but unquestionably there will be more in the future. This again will pose a problem for the air carrier users of the airports, from the standpoint of their ability to enter into term agreements for airport user charges, since it is doubtful whether such revenue bonds would be saleable without a guarantee that rates would be maintained at a level which would provide for servicing the debt. This being true, it would seem that the air carriers must have a substantial voice in the determination of the need for facilities which are to be built from the proceeds of revenue bonds.

Airline Operation of Airports

Because of the problems, actual and potential, associated with their use of municipally-managed airports, the airlines have intermittently given thought to the desirability of leasing or owning airports and operating them through airline-owned corporations created for this purpose. One such experiment has been tried at Willow Run Airport, Detroit, Michigan, and the results have been good — in fact excellent. Through the initiative of the management, concession revenue has been developed to a point where the flight fees paid by the airlines are the lowest in the country for any comparable airport. In this case no large capital expenditures were required since the airport is owned by the University of Michigan and is leased by the airline corporation. Normally, however, such a method of operation would require the airlines either to lease the airport from the owning municipality or to raise the capital to build it. It is probable that the political and financial problems involved will slow up developments in this direction, although the Willow Run experience would certainly indicate that the plan has merit.

Chicago's O'Hare International Airport

The most recent major airport agreement is the one executed last fall by the City of Chicago and the airlines serving the City. Previously I have ventured the opinion that the O'Hare project is an outstanding example of cooperation between the airlines and a municipality. From the inception of the planning for O'Hare, between 8 and 9 years ago, the airlines were given every opportunity to participate in the project. In 1946 a so-called Chicago Airlines Top Committee was formed, made up of a representative from each of the airlines serving Chicago. Sub-committees were established to deal with specific phases of the problem, including a Technical Committee, to work with the City on construction planning, and a Flight Operations Committee to keep an eye on pertinent details of the project.

These Committees, with relatively few changes in personnel, have worked closely with the City on all engineering and flight phases of the program. Over the years there naturally have been many changes in details of the project. In all these, the airlines have been given an opportunity to voice their opinions and make suggestions.

I don't mean to imply that there were no snags. There were many — some minor and one or two major, one of which resulted in the suspension of construction for several months. But in the larger view, I think the airlines were given all possible cooperation by the City in the design of the O'Hare facilities.

In 1950 a Negotiating Sub-committee was formed to work out an agreement with the City covering the rights and obilgations of the parties and payment of user charges by the airlines. In the negotiations which culminated in the agreement signed last fall, both parties had the benefit of past experience and up-to-date thinking on the relationship between the airlines and airport management. All the problems to which I have referred, and many others, were brought into the picture. The City wanted what the airlines considered to be a very high flight fee; they wanted it to apply to takeoff weight rather than landing weight, and they wanted a guaranteed minimum payment. Further, the City wanted to assess a gallonage charge on fuel. There was a wide difference of opinion on the term of the agreement.

The fifteen-year agreement which finally came out of the prolonged negotiations contains some new principles. Its major premise is that the City does not expect to make a profit from the airport but that users of the facility will meet the net cost of the City of running the airport so that general funds of the City will not be called on to pay a part of the cost.

Briefly, the basic points in the agreement are as follows:

Each year the flight fee, in cents per thousand pounds of CAA approved maximum landing weight, is derived by dividing the "Adjusted Net Airport Expense" for the previous year by the number

of thousands of pounds landed in that year. The resulting quotient becomes the rate per thousand pounds of approved landing weight for the ensuing calendar year. Provision is made for carrying forward to each year any deficits or excess payments from the preceding year. To get started on this method of payment, the rate for the period beginning on the date of the agreement (October 1, 1955) and ending June 30, 1957 is fixed at an arbitrary figure per thousand pounds, with a guarantee by the airlines that payments for their landings plus landings of others not parties to the agreement will amount to not less than $480,000.

The contract provides specifically for expenses to be included in the "Adjusted Net Airport Expense" which is the dividend in the formula outlined above. This, of course, includes all cost of operating and maintaining the airport, including direct costs, administrative expenses of the City in connection with the airport, depreciation on depreciable assets acquired by the City with funds other than Grants in Aid from Federal or State Government, and interest on funds (again other than Government Grants in Aid) invested by the City in capital expenditures (including acquisition of land, moving a railroad and relocation of highways).

From the total derived as above is subtracted all revenues received by the City from other than air carriers. This includes concession revenue, revenue from fixed base operators, flight fees from landings by aircraft other than those owned by the airlines parties to the agreement, etc. The amount left after this subtraction, adjusted up or down for deficits or excess payments in the preceding year, is the "Adjusted Net Airport Expense," which, when divided by the number of thousands of pounds of approved maximum landing weight by the airline parties to the agreement, gives the flight fee per thousand pounds.

One interesting provision relates to revenue bonds. If the airlines agree to the terms of any revenue bond issue, then all servicing of such debt shall be included as a part of the airport expense used in the above-described formula. If they do not approve such bond issue, the amount included in the airport expense is limited to simple interest on funds obtained by the City from such bonds plus depreciation on depreciable assets acquired with such funds. This seems to be a logical provision in view of the fact that (a) the airlines are in effect agreeing to pay all net expense of operating the airport and (b) since the airlines are the major users of the airport, they should be more interested than anyone else in major improvements requiring the issue of revenue bonds.

So far as I know, this is the first case in which the airlines have, in effect, guaranteed the City against loss on the airport. The airlines' alternative probably would have been to agree to pay a very high landing charge which would have continued even if the volume of operations at O'Hare had increased to a point where airlines pay-

ments would have been substantially in excess of requirements. On the other hand the arrangement effectively relieves the City of Chicago from having to pay a part of the cost of operating the airport.

The danger to the airlines in such an arrangement arises, of course, from the fact that their payments are governed by the cost of an operation which they do not control and which is dependent on the efficiency of the City's airport management. Certain safeguards are included:

The agreement states that the airport expense shall not include any expenditure which is of a nature or amount "which would not have been incurred by a reasonably prudent operator of an airport." The City agrees that it will inform the airlines of any capital expenditures in excess of $50,000 (other than certain specified ones) proposed to be made by the City and will give consideration to any suggestions made by the airlines in regard thereto. The City agrees to keep such records as are required by generally accepted sound accounting practices and principles for determining all costs and revenues of the airport which affect the determination of flight fees to be paid by the airlines and a representative of the airlines shall have the right to examine and make copies of these records. And the City will furnish to the airlines each year, a copy of an audit report, prepared by a firm of independent accountants, covering the operation of the airport by the City.

As previously stated, this is believed to be a new conception of the relationship between the airlines and municipal airport management. To a substantial effect it is based on confidence of the parties in each other. Time alone will tell whether the principles of this agreement will work to the mutual advantage of both parties.

SOME ASPECTS OF PLANNING FOR NEW SOURCES OF AIRPORT REVENUES

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WITH the sustained high growth rate in the volume and importance of air transportation in the United States, there has been a concomitant change in the nature of and enlargement of the functions of the airfield. No longer is it a patch of level ground in a very sparsely settled locality, providing room for airplanes to arrive and depart, service facilities for the equipment, and some minimal conveniences for the passengers. We shall be concerned here with some of the aspects of this change which relate to the service of *persons* on the *ground*.

There have been three distinct sets of forces at work bringing about this change. First and most important, of course, has been the growth in air traffic and in the services provided to air travelers. This is reflected largely in the immense increase in the size, complexity and refinement of the terminal buildings.

Second, the airport has, in many communities, become an important locus for recreation, employment, dining, and shopping for the citizenry. There are many reasons for this, among which is probably the circumstance that the high quality of the services provided initially for airline passengers has served to attract others. Not the least important of the reasons is the general interest and excitement which aviation and airplane operations hold for Americans of all ages and backgrounds. This non-transportation use of airport facilities has grown in some areas to the extent that some airport restaurants (i.e., Denver, Newark) find that more than 80% of their dinner meals are served to persons who come to the airport for the specific purpose of dining, and who enjoy, in addition to the food, the exciting environment and the view of the landing area with its comings and goings. This experience has doubtless been shared by other concessionaires in other areas. Related to this is the heavy utilization of observation deck facilities, not only by passengers and their escorts but also by townsfolk who come to the airfield for the purpose of observing the activities.

The third factor in the change has been the phenomenal growth in the suburbs of American cities in the past fifteen years. In some cities this has resulted in the growth of populated areas up to and even around the airport area. These suburban populations, consisting largely of homeowners, are typically of relatively high average income.

These three forces; i.e., the growth in air traffic, the increasing

non-transportation use of airport facilities, and the growth of the suburbs, have helped to bring about the vast changes in the nature and scope of the functions of the airfield establishment. However, the growth is not at an end. New ideas and new approaches are always coming forward. Even the most highly developed airports are undergoing constant change. Among the newer facilities which are being added or contemplated are: bank branches, public garages, hotels, and retail shopping facilities. The first two may be regarded as the extension and enlargement of facilities of the same general nature as those that have become common throughout the country. Some airport banks for example, report the bulk of their business to consist of personal loans to airport employees.

The latter two, hotels and retail shopping facilities, and especially the last, represent new and perhaps more daring departures as sources of airport revenue.

This paper will explore some aspects of the planning for these two kinds of services.

Airport Hotels

The airport hotel, while only a few years old, has had a great deal of publicity and has enjoyed a large measure of success. Experience seems to indicate that, in general, the demand for hotel rooms at airports has been greater than had been anticipated, and that very high occupancy rates have resulted. The result is that the more newly planned airport hotels are typically larger in relation to the traffic at the airport than were the early experimental ventures.

The market for airport hotel rooms has many bases. In addition to its position as another commercial hotel competing with the other downtown hotels and enjoying the various competitive advantages and disadvantages of its peculiar location, it offers attractions that could not be provided by competing hotels in the other areas of the community. Some of the important sources of airport hotel patrons are the following:

1. Visitors to the airport and its business establishments. This is particularly important at those airports where one or more of the airlines maintain extensive office, maintenance, or training establishments. Such visitors are, of course, most conveniently served by hotel facilities on the airport site, particularly if their itinerary includes arrival and departure by airplane.
2. Airline personnel. In general, flight personnel seem to prefer to spend their one-night stopovers in town where there is more activity. However, when the schedule is tight, and there is little time for amusement, the convenience and time savings can be telling factors in favor of the airport hotel. This seems to be particularly applicable in the case of international crews at gateway terminals.

3. Connecting passengers. The airport hotel has been used not only as a convenience for those passengers who are of necessity faced with a connection of several hours, but it has also made feasible certain otherwise inconvenient late evening-early morning connections. In these cases, the cost to the traveler of the flight with hotel room at the connecting point is no greater than would be a through flight since, in that event, there would be a hotel room required at the destination. In general, the use of hotel facilities by connecting passengers may be expected to be most intensive in the case of international passengers connecting with domestic flights.
4. Private flyers. The airport hotel can be very convenient to the private flyer, who might like to change clothes and freshen up before going into town. It also makes it more convenient for him to arrive and depart at any time of the day or night.
5. Other travelers. For many travelers, the airport may be more convenient than a downtown location, particularly if the visitor cannot be certain when his business will be completed and he will be free to leave. In that case, if he is anxious to leave as soon as he is free, the airport is, of course, the convenient base from which he may act as "stand-by" on flights departing earlier than that on which he holds space.
6. Guests of persons and businesses in the local suburban areas.

The airport hotel is here to stay, and we can expect to see more and more of them erected. However, there are serious problems created by the hotel and its needs, especially if the hotel rooms are not to be in the terminal building itself. These problems are concerned largely with the desirability and consequences of providing the usual hotel dining, wining and service facilities which may be directly competitive with similar facilities already established in the terminal building. If the rooms are in the terminal building, the regular facilities will probably suffice, but, if the hotel is to be a separate building, the hotel operator is hampered if he cannot provide these services in the hotel premises, and the terminal building concessionaires are likely to take a dim view of the prospect of such nearby competitive facilities.

In any event, there is considerable interest and activity in the planning and construction of airport hotel and motel facilities. A very recent survey conducted by the Airport Operators' Council indicates[1] that, while there are such facilities now in operation at six airports, there are bids out or contracts pending for four others, and airport hotel facilities fit into the future plans at seventeen other cities. Present facilities reported in that survey include hotel facilities at Houston, Pittsburgh, and San Juan, roomettes at Baltimore, and motels

[1] The author is indebted to Mr. Thomas Burnard of the Airport Operators' Council for making available and permitting the publication of these results of that survey.

at Philadelphia and Jacksonville. Firm intent was reported in connection with hotels at San Francisco within one year and at New York's Idlewild Airport within two years, and motels at Louisville and Tampa within one year.

Hotel facilities were reported to fit into the future plans at Cincinnati, Cleveland and New Orleans for possible action within one year; Birmingham, Denver, Minneapolis-St. Paul, Nashville, and San Antonio for possible action within two years; Atlanta, Columbus, Dallas, Oakland, Oklahoma City, Portland, St. Louis, and San Diego within five years, and Boston for action at some less clearly defined future date.

Retail Shopping Facilities

The large amount of activity at airports, the increasing high and middle income populations in the vicinity of airports, the large amounts of buffer land held unproductive on the airport site, the increasing importance of the suburban shopping center, the shortage of suitable sites for the erection of shopping facilities, and the architectural and merchandising custom of providing suburban shopping facilities in low one- or at most two-story buildings, all suggest that perhaps, in many areas, the airport location might well be considered as a possible site for the location of new retail shopping facilities. These facilities should be regarded as primarily serving the needs of the residents of the surrounding areas, rather than those of persons who, for other reasons, come to the airport.

In analyzing the airport site to ascertain whether shopping facilities might be appropriate, there are several important considerations involving economic, legal, zoning, and public relations aspects. Here we will be concerned primarily with the economic problem of analyzing the potential market to determine whether it is sufficient to warrant the erection of retail shopping facilities.

It must be borne in mind that one of the most important merchandising aspects of suburban shopping centers is that they represent *integrated* shopping facilities permitting the customer to select among and purchase a more or less wide variety of items. For this reason, there is a minimum market potential below which the project is not feasible. However, the range of possible store-mixes and total sizes is quite large, varying from the small neighborhood type shopping center to the large regional center. The former may require as little as 5 acres and serve the needs of 1,000 to 3,000 families with respect to "convenience" goods such as food, drugs, automobile service station, and personal services such as laundry, barber, and beauty parlor. The latter, the regional shopping center, is a small-scale approximation of a downtown retail shopping district. It may contain one or more department stores, and it will also provide competing specialty stores. The center as a whole will thereby offer a full line of "shopping"

goods, such as fashion items and house furnishings. Regional shopping centers may utilize as much as 50 or 60 acres and may have 250,000 people in their trading area.

One of the complications in the analysis of the market for prospective shopping facilities is the fact that the size of the potential market affects the size and scope of the shops that may be deemed appropriate. On the other hand, the size and scope of the shopping facilities determine the pulling power of the shopping center and therefore control the size of the potential market. Since it is necessary to cut into this circle somewhere, it might be found that the first tentative roster of stores was unduly optimistic or pessimistic. Analysis might indicate that a shopping center of the originally contemplated size or type could not expect to be successful, while another scheme on the same site would be promising. Indeed, the market analysis may result in the rejection of the site, while another site in the area might be well-adapted to the purpose. On the other hand, the physical nature of the site may place severe limitations upon the store-mix and therefore confine the trading area and decrease the scope of the market.

In the case of the analysis of an airport site, the problem of economic analysis is already somewhat limited because the site is a given factor. The analysis does not encompass the determination of the relative merits of several alternative sites. The purpose is merely to ascertain the feasibility of this kind of utilization of the fixed site, presumably for the purpose of making the heretofore unused or less profitably used acreage yield new or increased income.

Of course, the site must be examined to ascertain whether it is satisfactory from the point of view of: size, topography, costs of development, transportation and access, highway adequacy, and attractiveness. It is probably safe to generalize that airport sites are typically satisfactory in all or most of these respects. That being the case, all that remains is the economic analysis.

While a final market analysis for the actual decision about the number, kinds, and sizes of retail stores to be erected should be made by a person or persons experienced in these matters, it may be generally useful both for preliminary cursory examination of possible sites — and for general information — if a brief exposition of the techniques and enumeration of the important considerations involved in such market analysis is presented here.

The important matters to be considered in such a market analysis include: the physical size of the trading area (the area from which customers may be expected to come), the population of the trading area, the income distribution in the trading area, expenditure patterns in the trading area, existing competitive retail facilities, and possible competing sites for future development.

The size of the trading area is a function of the automobile driving time. Since suburban shopping centers may in general be interpreted

as an adaptation of retail land use to the automobile age, and since, therefore, one may assume that the bulk of the patrons will arrive and depart by private automobile, the boundaries of the trading area may be defined by the isochrons of driving time constructed about the site. The number of minutes of driving time which might be appropriate will, of course, vary, depending on the size and shape of the contiguous built-up areas, the relationship to competing (especially downtown) shopping areas, and local customs and attitudes about what constitutes a reasonable driving distance. Perhaps twenty to twenty-five minutes driving time may be suggested as a reasonable first approximation for the outer boundary. Of course, in those directions in which there are no competing shopping facilities, the trading area may well be extended for considerable distances beyond this figure.

The total area should be drawn on a map showing the census tracts or minor civil divisions as defined by the Bureau of the Census. The current population of each of these areas should be obtained. It must be emphasized that the 1950 census population figures may be seriously outdated in mid-decade, especially for suburban areas such as are under consideration here. A simple technique is to use the 1950 census figures for census tracts or minor civil divisions as a starting point and to bring them up to date by using data for housing permits, utility meters, school censuses, etc. In these ways highly useful current population figures may be obtained easily and inexpensively.

Income figures again are available from the 1950 census, but these may not be so easily brought up to date. However, there are some published figures which may be used to compute ratios to modify the decennial census figures and thereby provide estimates of current income levels. The figures for per capita income payments as compiled by the Department of Commerce or income data published by the Bureau of Internal Revenue may be found useful for this purpose.

The income figures for each minor civil division must be translated into expenditures, and this may be done by ascertaining the expenditure patterns for consuming units (or households) in the various income groups and multiplying the expenditures per household for various consumer items by the number of households in the appropriate area. This requires a knowledge of how consumers spend their incomes. Such information has recently become available from the Bureau of Labor Statistics as a result of extensive consumer surveys which that agency has conducted. A survey of ten cities[2] has been available since 1952, and, more recently, the coverage has been

[2] *Family Income, Expenditures and Savings in 10 Cities*, United States Department of Labor, Bureau of Labor Statistics, Bulletin No. 1065, 1952. The cities included were: Savannah, Ga., Scranton, Pa., Milwaukee, Wis., Manchester, N. H., Richmond, Va., Washington, D. C., Denver, Colo., Detroit, Mich., Houston, Tex., and Memphis, Tenn.

expanded to 91 cities.[3] If the area under study is not one of these cities, perhaps a logical substitution may be made, whereby the expenditure pattern for a similar surveyed city may be used. Needless to say, such a substitution must be carefully considered.

The final result of the part of the analysis described above is a list of the relevant minor civil divisions, the number of households in each of them and the expenditures per household in each of the consumer expenditure categories in which the analyst is interested. This yields the total consumer expenditures in the enumerated categories by residents of the trading area. Of course, as has been noted above, the number of expenditure categories which are of interest depends upon the tentative store-mix, which depends upon the extent of the market, which, in turn, depends upon the store-mix. For this reason, the number of expenditure categories tabulated in the first instance should be large, and include most retail store expenditure items so that the analysis can begin on the basis of a large scale operation and proceed downward if the facts so direct. This is to suggest that the analysis should cut into the circle of causality by assuming a large scale operation and then decrease its scope as the data dictate.

The remaining problem, and a very difficult one, is the determination of how much of this total expenditure may be expected to be made at the proposed retail stores on the airport site. This estimate may conveniently be made by applying discount factors to the data, either the number of households or the total expenditures in each category (the former is the less cumbersome procedure), for each of the minor civil divisions. These discount factors may conveniently be assigned on the basis of, first, distance and second, competitive retail facilities. The discount factors must, of necessity, be a matter of judgment, but the limits for the exercise of such judgment are far from indefinitely wide. For example, the distance discount factor varies from zero, for the very nearby areas, to 100 for, say, over 20 minutes, if the 20-minute isochron has been used as the outer boundary of the trading area. Intermediate values may be assigned to the intervening distances by, say, five-minute intervals.

The discounts for competition are somewhat more complex in that the effect of competitive facilities in the immediate vicinity of the consumer is different for different types of consumer goods. That is, for most food, drugs, cigarettes, gasoline, etc. (i.e., "convenience goods") the consumer is likely to shop at the most convenient location if his shopping trip is for those items only. On the other hand, for housefurnishings, fashion items, etc. (i.e., "shopping goods"), he is more likely to forsake the more conveniently located retail outlets in favor of others which may be more attractive for other reasons. Thus, the effect of competitive facilities in the vicinity of the con-

[3] *Family Income, Expenditures and Savings in 1950*, United States Department of Labor, Bureau of Labor Statistics, Bulletin No. 1097 Revised, June 1953. This is a preliminary report on the 91 cities. The final report, scheduled for publication in May, 1956 is entitled, *Consumer Expenditure Study*.

sumer, or between the consumer and the airport site, is greater for the convenience goods than for the shopping goods, thereby requiring a higher discount factor. In any event, it is necessary to examine and consider all existing retail facilities that may be competitive with those proposed, and estimate their effect on the total expenditures to be anticipated at the site under study.

The final result may be that the originally contemplated large-scale shopping center could not draw adequate patronage to merit its establishment. In that case a scaled down version may be found to be economically feasible. It would, of course, draw less, but it would require less patronage to be feasible.

The possibility of alternative sites which might be developed later as competing facilities is one that cannot always be evaluated quantitatively, but one that should be given careful qualitative consideration.

The extent to which the airport site will continue to grow in importance as a recreational and shopping center as well as an employment center cannot now easily be assessed. There are conflicting indications in that the growth thus far has been steady, and in general, the new ideas such as the banks and the hotels have fared well; however, on the other hand, the interest and excitement which the airport seems to offer its visitors may be more than offset by an increase in aircraft noise with the advent of the newer types of equipment. While the soundproofing of buildings may well progress to the point that the hotel guest may rest quietly as the jets take off, perhaps the increased noise, if there really is an increase in noise, may make casual visiting or shopping less attractive.

In any event it is to be hoped that in the future more and more new ideas for the productive use of airport acreage will be developed, so that significant contributions to airport revenues may be made by offering more and more valuable services to the community.

NEED FOR AN EXPANDED AIRPORT PROGRAM IN THE UNITED STATES

By Cyril C. Thompson

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THIS article is intended to point out the urgent need for an adequate system of landing facilities in the United States. Airports and landing strips are needed to strengthen the national economy. The users of private and business airplanes need an airport system that will ultimately parallel the system of public roads; places to land near most of the 17,118 incorporated cities and towns in the 48 states.

As you probably know, there are only approximately 2,500 publicly owned landing places in the present system of civil airports. The published list of 6,977 airports in the 1955 Statistical Handbook of Civil Aviation also includes the privately owned and military airports which are limited or restricted. About half of the publicly owned 2,500 have received financial assistance under the provisions of the Federal Airport Act of 1946. The 500-odd public airports that serve the scheduled air carriers have been given prior attention in each year's Federal aid allocations because they have had to meet the requirements of steadily growing airline traffic. Since 1954, however, the rapid acceleration in general aviation aircraft utilization has shown the need for an expanded airport program with increasing attention to the requirements of general aviation.

Plant dispersion to strengthen the Nation's mobilization base is a factor in the rapid acceptance of the business airplane as essential equipment by many technical specialists and corporations. Since 1950 the Secretary of Defense has urged the armed forces to spread procurement contracts as widely as possible, even though it would require more use of negotiated business and a curtailment of formal advertising. It has been considered necessary to integrate procurement with mobilization planning. Over the long view smart procurement demands that the wheels be kept turning in the plants of the planned suppliers whenever possible. There are cases where an order must be divided between several plants and this requires a lot of shuttling back and forth by technical people having responsibility for the order. The airplane saves travel time and helps expedite production.

Throughout all industry the private and business airplane is coming into use for contact trips to sources of raw materials, to component suppliers, and to buying and selling markets. That is why the users of general aviation aircraft want public airports and landing strips at

additional thousands of the Nation's incorporated places—all having some connection with raw materials, manufacturing, buying and selling. That is why the Aircraft Owners and Pilots Association (55,000 members), the large number of companies in the National Business Aircraft Association, the fixed-base service operators in the National Aviation Trades Association, and other general aviation elements are seeking the necessary local support for many new landing facility projects.

A wave of alarm moved over this country two years ago when officials of our municipalities read Senate Document No. 95, the report of the Airport Panel of the Transportation Council of the Department of Commerce on the growth of the United States Airport System. That report revealed that we had in this country only 150 airports (an average of about 3 to each State) with paved runways of 5,000 feet or longer. There were 579 airports with runways between 3,500 and 5,000 feet in length and all other civil airports were reported to have runways less than 3,500 feet long. These facts were early called to the attention of Congressional leaders by the 12,000 member American Municipal Association.

In his remarks before a Senate Aviation Subcommittee, an AMA spokesman said:

> "We have in the United States 17,118 incorporated places (populated by 96,062,627 persons), a large percentage of which are industrial, agricultural and commercial centers playing an important part in the national economy. It should be possible to reach these places at air-age speeds in any emergency as well as under modern business conditions. We could face a situation where the products of our farms and factories are needed quickly at unexpected locations to feed or equip dispersed multitudes forced from some of our cities by atomic attack. We could need air speed service in relocating the salvaged machinery of bombed-out factories. We have talked with pride about our national economy and work force being the first line of defense and yet with only 150 airports capable of accommodating our best load carrying transport aircraft we are not prepared to strengthen and sustain our economy. We need action now to broaden the airport base of that means of air transportation that cannot be slowed down by broken rails or highways; a means of transport that is 5 to 8 times as fast as highway transportation."

In a report to President Eisenhower on Federal-city relations, in which is outlined the multiple pressures which have come to bear on cities since World War II, the National Institute of Municipal Law Officers strongly urged a greater Federal responsibility and financial participation in an expanded airport program. These officials said:

> "While airports are a great public benefit to the city they serve, their major benefit is to the Nation. Their service is essentially a national one, as the pace of the Nation is geared to transportation.
>
> "The shift of population from the rural to the urban areas where nearly 100 million of our population now reside; the advent of motor vehicles with their repercussion on traffic, parking, and

crippling impact on local transit systems; the aviation industry with its rapidly growing need for sites and installations in or near the cities; inflation and its spiral of rising costs making carefully prepared budgets little more than mingled guess and hope; the cost of operating the Federal Government and financing national defense, presently taking from the taxpayers of the cities many times the amount collected for local government.

"All of these things have put the cities in economic waters well over their heads. They will continue to put forth their mightiest efforts to adjust their economies to the new multiple burdens. This, however, will not suffice.

"The Federal Government must continue a course of intelligent cooperation with the cities. If the cities fail for any reason, the cost and loss will be national."

During the decade of the 1950's we have seen a notable advance in all forms of civil aviation. The increasing traffic handled by our airlines and their confidence in the future, as evidenced by substantial commitments for new equipment, is a source of national pride. The rapidly increasing use of general aviation aircraft is also a gratifying surprise. This growth makes necessary an entirely new look at our civil airport development program. Where we have been giving attention to the airports serving our airlines, we must now broaden the program to facilitate the operation of aircraft to many hundreds of airports that do not expect any form of scheduled airline service in our time. These smaller places have need for adequate landing places for private and business aircraft, just as they have need for the Federal-aid State and local roads that are being improved and expanded every year. The airlines are entitled to credit for selling the idea of time-saving air travel to the public and are reaping a good return in traffic volume. However, the personnel of commercial and industrial organizations now want the advantages of air-speed movement of persons and things to literally thousands of places not served by scheduled air carriers. They also have need for an increasing amount of flexible air transportation that can only be provided by privately owned airplanes. That is why approximately 6,000 corporations in the United States today use about 20,000 aircraft as business equipment.

Just as the private automobile, company service car and light utility truck have become standard business equipment for use on our public roads to places an hour's drive from factories, shops and stores, the utility airplane is growing in use for distances up to 1,000 miles from mines, oil wells, factories and distribution centers. Business and private aircraft play an important part in the maintenance and servicing of farm implements, mining and drilling machinery, automotive equipment, electronic devices, telephone lines and pipelines, water and rail equipment, chemical plants, food machinery, business machines, and all types of manufacturing plants including munitions. The sales and distribution executives, whose business it is to have food, clothing, building materials and other merchandise where the public wants to find them for sale, now travel quickly by business aircraft.

There is little reliable information today about private and business aircraft movements beyond the 180 airports having CAA operated towers. The Aircraft Owners and Pilots Association has plans for an airport division that will build up from year to year the data needed in planning for an adequate system of public airports. The National Business Aircraft Association is gathering information from members about the number of additional trips aircraft would have made last year if landing strips had been available at the proposed destination. In asking its members—"What would you like to see the Department of Commerce do to assist in providing as soon as possible a system of public airports to meet the requirements of the users of aircraft in commerce and industry?" the NBAA got such replies as the following:

> "Establish better liaison with city and county governments to point out growing need for better airports."
>
> "We need more 3,500 foot paved single strips in small towns."
>
> "Lengthen and/or improve at least one runway of existing airports in towns off the scheduled airways, but in which there is industrial growth."
>
> "Lay out long sod strips, maintained by State Highway departments paralleling a major road intersection at each town of 10,000 population or more."
>
> "Permit airport operators to install 122.8 M.C. at airports catering to business aircraft so that orders for ground transportation could be placed while in flight. One of our greatest problems is the time lost in obtaining ground transportation upon reaching our airport destination."
>
> "Amend the Airport Act to parallel the Public Roads Act in making facilities free of tolls or landing fees for private and business conveyances below a certain weight. At Federally aided airports establish reasonable maximum charges for ground rental of property to be used for aviation related purposes. This would encourage many fixed base operators to improve the available service to aircraft users."

For convenience in the study of requirements at airports serving air carriers, the CAA has used a "hub" classification based upon enplaned airline passengers.

The following sample list shows how business and private aviation (civil itinerant and local civil) grows to provide flexible air transportation in typical cities of three airline hub classifications.

Airport	*City Population 1950 Census*	*Aircraft Operations 1955*		
		Air Carrier	*Civil Itinerant*	*Local Civil*
	(1) LARGE HUBS			
Buffalo, N. Y.	580,132	50,193	17,074	4,174
Houston, Texas	596,163	54,432	52,621	6,829
St. Louis, Mo.	856,796	81,479	39,116	5,538
Washington, D. D.	802,178	176,820	26,617	1,580

Airport	City Population 1950 Census	Aircraft Operations 1955		
		Air Carrier	Civil Itinerant	Local Civil
(2) MEDIUM HUBS				
Columbus, Ohio	375,901	47,455	41,011	22,310
El Paso, Texas	130,485	27,018	37,247	74,299
Memphis, Tenn.	396,000	45,304	37,230	29,990
Oklahoma City, Okla.	243,504	33,832	34,507	34,347
(3) SMALL HUBS				
Amarillo, Texas	74,246	20,969	18,379	8,334
Columbia, S. C.	86,914	19,395	17,500	16,680
Evansville, Ind.	128,636	18,358	16,585	7,896
Rochester, Minn.	29,885	21,213	16,816	11,462

The CAA officials charged with the responsibility of approving requests for Federal aid often compare a proposed landing facility's estimated potential with actual performance at an airport serving a similar community. Using a population unit of 10,000 people, the CAA planning staff has found that the average "balanced" class city enplanes 150 percent more passengers than the average "industrial" class city; the average "institutional" class city 370 percent more and the average "marketing" class city 375 percent more passengers than the average industrial class city. These percentages provide a rough indication of the relative volume of private and business aircraft traffic to be expected at cities in the classes indicated. However, the rapidly growing use of aircraft in industry for contact with branch plants and component manufacturers may put the "industrial" class city ahead in general aviation activity.

Airport planners now realize that airline statistics alone do not tell the air traffic story. The following figures show an estimate for 1955 of the passengers in and out of a sample list of airports—for both *airline* and *general aviation itinerant aircraft*:

Airport	City Popul'n (1950 Census)	Airline		Gen'l Aviation (Itinerant)	
		Aircraft Operations	Passengers in and out	Aircraft Operations	Passengers in and out
Allentown, Pa.	106,756	9,996	52,500	26,224	65,560
Asheville, N. C.	53,000	10,153	46,600	12,180	30,450
Austin, Tex.	132,459	16,504	118,270	25,652	64,100
Bakersfield, Cal.	34,784	5,743	32,300	32,615	81,530
Baton Rouge, La.	125,629	15,296	68,450	21,669	54,170
Billings, Mont.	31,834	14,413	92,862	20,769	51,920
Charleston, S. C.	70,174	15,429	79,434	12,215	30,530
Chattanooga, Tenn.	131,041	27,158	138,500	21,067	52,600
Colo. Spgs., Colo.	45,472	17,766	73,200	10,038	30,090
Daytona Beach, Fla.	30,187	12,033	56,100	15,157	37,890
Evansville, Ind.	128,636	18,358	138,190	16,585	41,460
Flint, Mich.	163,143	12,613	53,600	31,785	79,460
Fort Wayne, Ind.	133,607	15,293	76,660	30,798	76,900
Grand Rapids, Mich.	176,515	18,684	164,710	19,923	49,800

Work has started on a comprehensive aviation facilities plan for the next 20 years. President Eisenhower has pointed out that we have congestion in the airspace today because airports, navigation aids, air traffic control devices and communications systems do not meet the requirements of growing civil and military air traffic. A Special Assistant to the President has been sworn in to lead in the formulation of a plan to reduce congestion in the airspace. His work will have special interest to the Director of the Budget, who has the responsibility for reviewing the programs of the Federal agencies concerned with aviation matters.

The users of private and business aircraft believe that unlimited possibilities in the greater use of airspace would open up if air traffic did not converge on so few airports at such a wide range of speeds. The navigation of airplanes over land has been aided by radio installations that project fixed positions and tend to channelize air traffic, crowding it into narrow lanes, concentrating it into small areas, all necessitating control measures to separate it in the interest of safety. It now appears that air traffic control measures have virtually reached their capacity, calling for something far different and far more effective. The complexity of the traffic on our highways—private, business, bus, truck, and military—give some idea of what the problem will be on the airways. There is one big difference in the fact that airplanes cannot stop and wait. However, it is possible that *those using public terminals* may have to be capable of operating at some standard lower speed, just as high powered automobiles are required to move at low speeds in congested areas and school zones. The traffic control problem is a difficult one.

One group of private and business aircraft users studying the air traffic control problem believe the "area or random" distribution of air traffic merits a closer look. They see the area distribution method with some means on the aircraft for warning against potential collision, as a way to get increased usability of the airspace. They visualize the lower several thousand feet of airspace as uncontrolled, except in the airport approach area. They stress the need for many secondary airports and landing strips to offer a wider selection of landing places. The Minneapolis-St. Paul area is used as an illustration of a community with a wide selection of landing places.

A quarter of a billion dollars in Federal aid for civil airports has been made available by the 84th Congress. The Federal aid program for 1956 exceeds in matching funds for airport development the total made available in any single year since Congress passed the Federal Airport Act of 1946. The following figures show the funds appropriated by Congress, or available for obligation, to implement the Federal Airport Act:

$45,000,000	for fiscal 1947
32,500,000	for fiscal 1948
40,000,000	for fiscal 1949
39,500,000	for fiscal 1950
24,200,000	for fiscal 1951
18,700,000	for fiscal 1952
14,321,154	for fiscal 1953
None	for fiscal 1954
22,000,000	for fiscal 1955
62,500,000	for fiscal 1956

Under the provisions of Public Law 211, passed last July to amend the Federal Airport Act of 1946, the sponsors of public airports may plan to receive in aid during each of the next three fiscal years $63,000,000 less certain administrative expenses.

A greatly expanded system of public landing places is expected to keep step with the airway traffic control improvements now being planned. Counties, towns, and cities are seeing more clearly the connection between community growth and air transportation in all its forms. They are making aeronautical-economic studies to provide needed facts for planning new airport construction or landing strip improvements. From such study reports they get an estimate of the volume of traffic that a landing place will attract and the effect of that air traffic on local commerce, industry, and the general welfare.

The recent National Airport Plan prepared by CAA and based upon a projection of civil aviation needs up to the year 1960 shows 1,309 general aviation airports and 617 air commerce airports in need of improvements.

Public Law 211 will make possible important work under the plan. The great majority of the 422 airports on the Federal aid allocation list this year are in the Air Commerce Airport category. CAA has pointed out that it is a responsibility of the users of business and private aircraft to urge the public owners of general aviation airports to proceed with needed improvements, asking for Federal aid when they need it. There is little doubt that future annual Airport Plans will include thousands of additional community landing strips. It may well be that the decade of the 1960's will be the decade of *general aviation's* greatest advance.

PLANNING AND FINANCING CHICAGO'S MUNICIPAL AIRPORTS

By John L. Donoghue

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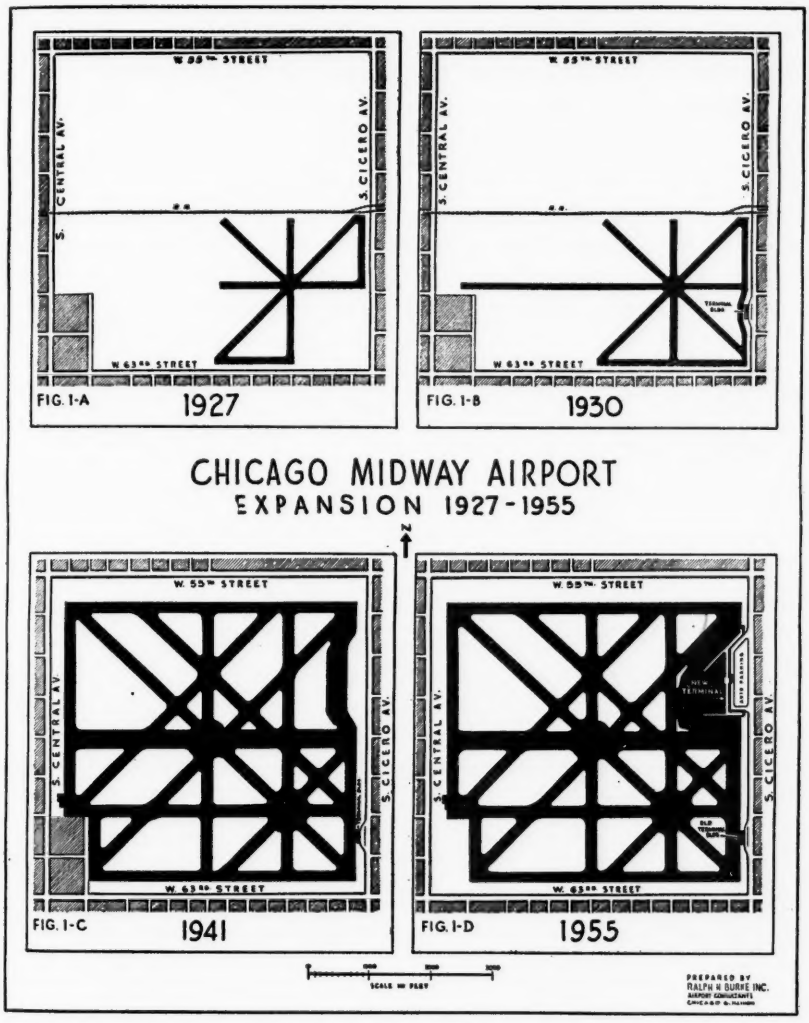
Midway Airport

NEARLY all of the world's terminal airports have one thing in common. They were either obsolete or inadequate on their dedication day. This has happened because of the rapid growth commercial aviation has been experiencing while these airports were being planned, financed and constructed. In most cases, immediately after the mayor of the city cut the ribbon commencing operations at the brand new facilities, the airline officials were pressing for longer runways, more gates for loading aircraft, additional automobile parking spaces or an expanded terminal building. In this respect Chicago has experienced the same pattern with its active municipal airport located 8.5 miles southwest of Chicago's loop.

The Bureau of Parks and Aviation of the City of Chicago originally was in charge of the development and operation of Midway Airport. Shortly after World War II, this responsibility was transferred to the Department of Public Works and a separate Bureau of Aviation was established. While our organization's responsibility is limited to the design and development of the two new airports serving Chicago, namely, O'Hare Field and Meigs Field, no discussion of Chicago's terminal airports would be complete without at least a brief history and a bird's-eye view of the present development and activities of Midway Airport. This airport is of particular significance because of the fact that, of all the world's airports, it is the busiest.

In 1924, activity at Midway Airport consisted principally of a few World War I Jennys which were flown by barnstormers of that era. In 1926, Chicago's City Council voted an appropriation of $10,000 for the operation of a municipal airport at this location. A 120 acre parcel of land lying west of Cicero Avenue and north of 63rd Street was leased from the Chicago Board of Education for this purpose. (See Figure 1A.)

The first commercial flight was made at the newly established



Municipal Airport on December 13, 1927, when a pilot named Ira O. Biffle took off in a Boeing mail plane. Pilot Biffle is also distinguished for another accomplishment uncommon for pilots of his period; he died in bed of natural causes.

In 1930, the volume of traffic at Municipal Airport had increased so much that it was necessary to expand the airport to the west along 63rd Street until it was more than twice its original size. (See Figure 1B.) The sum of $450,000 was invested in runways, aircraft parking ramps, storm sewers and boundary fencing. A terminal building was also erected near 63rd Street and Cicero Avenue.

In 1941, the airport was again doubled in size so that it was then more than five times as large as the original 120 acres. (See Figure

1C.) The ramp in front of the terminal building was expanded to provide for ten airplane parking gates. The airport now consisted of a square mile, less an 18 acre plot in the southwest corner which was occupied by Hale Elementary School. To accomplish this expansion it was necessary to relocate the tracks of the Chicago Outer Belt R.R. line which bisected the expanded airport site along 59th Street, which had been its north boundary previously. Additional runways, taxiways and parking ramps were laid as a part of this expansion with Public Works Administration funds. The runways were constructed in a pattern known as "dual-parallel" system. Normally one runway is used for take-offs and its parallel is used for landings. This configuration is capable of handling about 60 landings and 60 take-offs for a total of 120 movements per hour.

In 1947, a new passenger terminal with 15 gates was constructed about four blocks north of the old terminal. The old terminal was then converted for use by the non-scheduled and international flights. A total of 28 gates was provided by expanding the new terminal in 1953. During 1955 the old terminal was remodeled to provide additional space for the foreign carriers using Midway Airport. The ramp adjacent to the old terminal is large enough to accommodate 10 airplanes simultaneously today. Figure 1D shows the present layout of the airport. A recent inventory of the City's facilities indicated that its investment is in excess of $12,000,000, including grants from other governmental agencies. This figure does not include the cost of the land. The airlines' investment in hangars and other facilities is in excess of $24,000,000.

The year by year totals in scheduled passenger movements at Mid-

FIGURE 2

SCHEDULED PASSENGER MOVEMENTS AT MIDWAY AIRPORT

*Year**	*Total Scheduled Passenger Movements*	*Year**	*Total Scheduled Passenger Movements*
1928	15,498	1941	727,618
1929	23,164	1942	633,656
1930	54,048	1943	679,083
		1944	915,645
1931	91,367	1945	1,319,115
1932	92,112		
1933	117,593	1946	2,488,191
1934	125,944	1947	2,537,412
1935	176,246	1948	2,428,107
		1949	2,842,096
1936	240,677	1950	3,502,716
1937	262,590		
1938	307,860	1951	4,507,881
1939	408,893	1952	5,488,204
1940	621,524	1953	6,736,143
		1954	7,525,724
		1955	8,751,906

* For the calendar year January through December.

way Airport are shown in Figure 2, starting with 1928, which was its first full year in operation, and ending with 1955. Midway Airport is outstanding also by the fact that it is the only airport which has experienced an increase of nearly 60,000 percent in passenger traffic from its first full year to the present, and is still in business at the same site. (See Figure 3.) The magnitude of the traffic at Midway is also shown in Figures 4 and 5. An operation, by definition, is either a landing or take-off. This term is also commonly called an airplane movement. The air carriers referred to in Figure 4 are the scheduled

FIGURE 3

COMPARISON OF 1955 TRAFFIC WITH 1928 TRAFFIC AT MIDWAY AIRPORT

	1928	*1955*	*% Increase*
Airplane Movements	6,960	381,005	5,490%
Mail (lbs.)	1,688,888	24,459,709	1,450%
Air Express (lbs.)	32,775	58,085,238	178,000%
Scheduled Passenger Movements	15,498	8,751,906	56,400%

FIGURE 4

RANKING OF TWENTY-FIVE BUSIEST U. S. AIRPORTS IN AIR CARRIER OPERATIONS

Ranking	*City*	*Total Air Carrier Operations, Fiscal, 1955**	*Carrier Operations As a % of Total*
1.	Chicago (Midway	297,731	82.5%
2.	New York (LaGuardia)	197,097	79.5
3.	Washington	176,820	83.1
4.	Los Angeles	151,774	54.5
5.	San Francisco	139,618	65.0
6.	Miami	132,903	50.0
7.	Dallas	113,693	50.8
8.	New York (Idlewild)	113,402	91.5
9.	Detroit (Willow Run)	109,961	83.0
10.	Cleveland	107,977	48.8
11.	Atlanta	103,710	49.7
12.	Greater Pittsburgh	101,619	58.1
13.	Newark	98,459	83.6
14.	Boston	86,110	65.4
15.	Kansas City, Mo.	86,017	51.7
16.	Philadelphia	85,416	57.3
17.	St. Louis	81,479	45.3
18.	Oakland	78,713	42.1
19.	Burbank	68,101	43.1
20.	Louisville (Standiford)	66,751	71.2
21.	Minneapolis	62,986	37.2
22.	Indianapolis	62,940	47.1
23.	Denver	62,179	27.1
24.	Cincinnati (Covington)	61,605	67.3
25.	Jacksonville	60,635	39.5
	TOTALS OF 25 AIRPORTS	2,708,696	
	TOTAL OF ALL U. S. FIELDS	5,727,373	30.0

* July 1, 1954 to June 30, 1955.

FIGURE 5

RANKING OF THE BUSIEST U. S. AIRPORTS IN TOTAL OPERATIONS IN 1955

Rank	*Airport*	*Total Operations*
1	Chicago—Midway	381,737
2	Miami	276,729
3	New York—LaGuardia	266,058
4	Los Angeles	263,516
5	Atlanta	246,709
6	Denver	239,861
7	Cleveland	226,768
8	Washington, D. C.	225,914
9	Teterboro, N. J.	221,637
10	Phoenix	221,419
11	Dallas	220,478
12	Albuquerque	212,560
13	Long Beach	211,085
14	San Francisco	204,498
15	Louisville	198,464
16	El Paso	198,188
17	Honolulu	195,591
18	Columbus	195,306
19	St. Louis	193,568
20	Oakland	193,478
21	Minneapolis	182,873
22	Birmingham	178,012
23	Kansas City, Kansas	176,689
24	Pittsburgh	176,528
25	Kansas City, Mo.	167,157
26	Knoxville	152,226
27	Detroit—Willow Run	144,690
28	Detroit—Wayne Major	144,327
29	Philadelphia	143,833
30	Boston	143,633
31	New York—Idlewild	138,292
32	Newark	127,198

FIGURE 6

SCHEDULED AIRLINES SERVING MIDWAY AIRPORT

Trunk

American Airlines
Braniff International Airways
Capital Airlines
Delta Airlines
Eastern Airlines
Northwest Airlines
Trans-World Airlines
United Airlines

Local Service Lines

Lake Central Airlines
North Central Airlines
Ozark Airlines

International

Air France
British Overseas Airways Corporation
Lufthansa German Airlines
Pan American Airways
Trans-Canada Airlines

All Cargo

Flying Tigers
Riddle Airlines

Helicopter

Helicopter Air Service

FIGURE 7

MIDWAY AIRPORT REVENUES FOR 1955

Item	*Total Amount*
Scheduled Passenger Landing Fees	$569,481
Automobile Parking	479,416
Restaurants	156,335
New Terminal Rent	132,439
Land Rent	91,343
Insurance Machines	61,942
Limousines and Buses	60,949
Telephone	59,648
Hangar Rent	49,190
Observation Deck	38,868
Non-Scheduled Passenger Landing Fees	36,190
Freight Landing Fees	35,155
Old Terminal Rent	33,843
News Stand and Gift Shop	30,789
Storage and Service	23,466
Petroleum Products	21,427
Lockers	16,720
Dock Rental	10,789
Sightseeing	2,400
Barber Shop	2,158
Tie-Up Fees	1,380
Radio and Telescopes	762
Gasoline Lines	600
Vending Machines	281
TOTAL	$1,915,671

combination passenger and cargo carriers. Figure 6 tabulates the various scheduled airlines serving Midway Airport. Figures 7 and 8 show the revenues and expenditures for Midway Airport in 1955. It should be noted that these are preliminary totals and are subject to final auditing.

In connection with the expenses of the airport it is interesting to note the terms of the lease for the land occupied by Midway Airport. As mentioned earlier, the land is owned by the Chicago Board of Education, which is a local governmental body and not a part of the City of Chicago corporate government. It is a separate entity with its own taxing powers. The Board of Education derives a large amount of money each year from real estate rentals. The Midway lease requires an annual payment of $30 per acre, plus ten percent of the gross revenues of the airport operations up until December 31, 1964. From this latter date until the expiration of the lease on December 31, 1980, the City must pay an annual rental of 6 percent of its then appraised valuation. Preliminary estimates indicate that if the lease were on this latter basis the rental payments might be three to four times as large as they are today. Because of the possible large change in rental after 1964 the present airline agreements for use of Midway Airport all contain provisions for readjusting the rates based upon the new land rentals at that time.

FIGURE 8

MIDWAY AIRPORT EXPENDITURES FOR 1955

Item	*Total Amount*	
Payroll	$444,569	
Board of Education percentage of net Receipts Rent	157,091	
Repairs to Runways and Taxiways	147,642	
Repairs to Buildings and Structures	73,822	
Electric Current	38,608	
Machinery and Equipment	31,641	
Material and Supplies	24,615	
Fuel	19,960	
Repairs to Machinery and Equipment	18,836	
Board of Education Fixed Ground Rent	17,660	
Miscellaneous Expense of Airport	2,916	
Telephone Service	2,384	
Auto Allowance	2,208	
Impersonal Services and Benefits	1,849	
Printing, Stationery, and Office Supplies	1,217	
Passenger Transportation	692	
Hire of Teams, Carts, and Trucks	90	
Sub-Total		$985,800
The following items are not part of the airport budget but are reasonable estimates of the charges that might be assigned to the airport.		
Bureau of Aviation Administration	100,000	
Fire Department	90,000	
Pension Fund Payments	31,000	
Police Department	21,000	
Water Department	5,000	
Sub-Total		$247,000
GRAND TOTAL		$1,232,800

O'HARE FIELD

In 1946, we were commissioned to initiate a study to determine Chicago's future airport needs. It was quite apparent that Midway Airport would never be able to accommodate all of the future traffic that Chicago was capable of generating. This study indicated the need of at least two additional municipally operated airports. The larger of these should be an intercontinental type according to CAA standards and capable of expansion to the intercontinental express classification, and the smaller airport should start as a secondary airport and be capable of expanding into an express airport. After much additional study to determine the requirements of these airports, sites were selected and approved by City, State and CAA officials for immediate development. The larger airport, which is approximately 19 miles northwest of the central business district has been named O'Hare Field. The smaller airport is located about one and one-half miles from the central business district and has been named Meigs Field.

The selection of the O'Hare site involved an analysis of many factors. Some of the principal reasons for the choice will be discussed

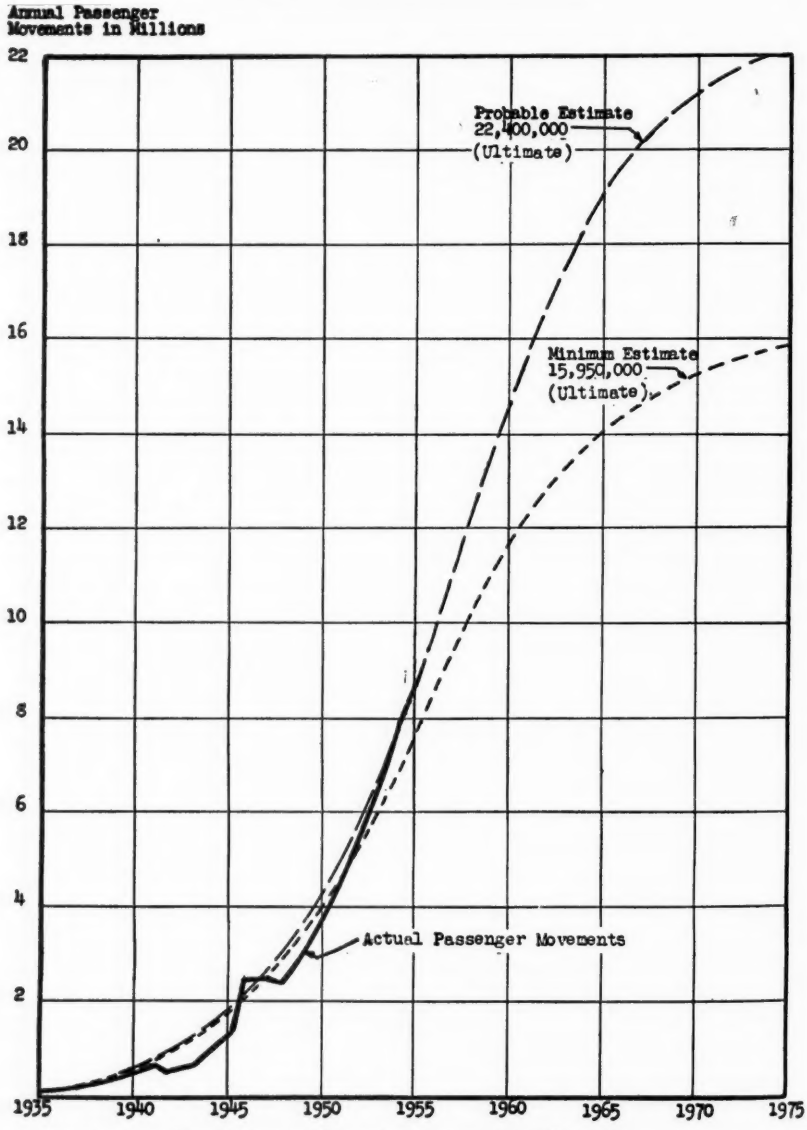
here. Midway Airport is very convenient for south side residents but for those living on the far north side it can be reached only after a trip of 1½ to 2 hours through very congested parts of the City. A north side location would alleviate this situation. A study of the total future traffic indicated that the Chicago potential was so great that at least two airports could easily be justified economically and they would serve the passengers more conveniently than one large airport for all the traffic. Therefore, early in the planning it was decided that it would be desirable if the new airport were located on the north side of Chicago.

As desirable as it may appear to be, it is economically unsound to try to build a major airport in a supposed central location. O'Hare field occupies 6,325 acres or nearly ten square miles. This is about one-third larger than Idlewild Airport which previously was the largest commercial airport in the United States. Studies were made of slum clearance projects and in all cases it cost about $1.00 to $1.50 per square foot for land acquisition. On an acre basis these costs range from about $43,000, to $65,000. This would make the cost of the airport site range somewhere between $280 million and $425 million. It would cost about the same amount to fill in the lake front area east of the downtown area. The amount set up in the tentative budget for land acquisition of the new airport was only $10 million. Therefore, it is obvious that it was not realistic to consider either of these sites for a major airport. However, it was decided that a smaller airport to serve a different need and to be located near the heart of the City and used by smaller executive type aircraft and personal flying could be justified since the land requirements were so much less. Meigs Field was developed by expanding an unused portion of Northerly Island, which had lain idle since the close of the Century of Progress Exposition in 1934.

One of the sites considered in the northern area for the larger airport was the former Douglas Airport which was constructed during the war to manufacture C-54 airplanes. It was offered to the City of Chicago as a surplus property item. It has a basic runway system and nearly 1100 acres of land. While the site was not large enough to satisfy the total requirements it could be expanded economically by purchasing adjacent farm lands. It was also a most desirable area since it was about as far away as possible from the heavy industrial areas located at the southeast corner of the city. The smoke which industry causes is most undesirable from an airport visibility standpoint.

Another important consideration in selection of the O'Hare site was the fact that it was adjacent to a planned superhighway which would connect directly with the downtown district and also connect into the comprehensive city-wide expressway system. This was most advantageous and essential. The introduction of jets by the airlines will only aggravate the ground transportation problems of aviation if comparable improvements are not made in surface transportation.

ACTUAL & ESTIMATED GROWTH OF SCHEDULED AIRLINE PASSENGER MOVEMENTS AT CHICAGO BY YEARS



Probable curve (Pearl biometric) based on years 1933, 1943, 1953.
Minimum curve (Pearl biometric) based on years 1931, 1941, 1951.

FIGURE 9

It is paramount that convenient, high-speed access be provided to any modern commercial airport. Provision must be made for many types of transportation to serve the traveling public. For instance, it is planned to have the following types of service at O'Hare:

1. Airport limousines
2. Suburban and city buses
3. Suburban and city taxicabs
4. Rapid Transit
5. Helicopter shuttle
6. Car rental service

In connection with this problem the airport designer must exert his influence outside the airport to see that the ground transportation problem is solved. It is necessary to work with transportation companies to see that adequate service is available and also to work with county and state highway officials to provide sufficient and convenient access roads.

Traffic Estimates

The study of future airport requirements indicated that each of the three airports should serve the following functions:

1. Meigs Field: Private, corporate and charter users initially and later expanded for use by local service airlines.

2. Midway Airport: Short haul and medium haul scheduled carriers primarily with a modest amount of private, charter and corporate use.

3. O'Hare Field: Medium and long haul domestic and international flights, all-cargo flights, military flights and some corporate use.

To determine the future needs for Chicago's airports it was necessary to make estimates of the Chicago traffic potential. This was done by making two completely different estimates. The first projection of future growth is identified as the Probable Estimate and was based on the following assumptions:

1. Economic activity would be either at normal or slightly higher than normal levels.

2. The airline safety record would show continued improvement until it was consistently equal or better than that experienced by the first class railroads.

3. All first class mail would be carried by air.

4. The concept of the 3-cent mile airline fare would be approached.

5. Continued improvement would be made in electronic navigation and landing aids which would permit safe operation of aircraft during periods of lower weather minimums than are permitted today.

The second projection, which is identified as the Minimum Estimate, reflected a much more conservative attitude on each of the five factors listed above.

Using the past records of growth of passenger movements by years, these two estimates were developed by means of Pearl biometric growth curves. Figure 9 portrays the actual traffic curve superimposed on the

FIGURE 10

PROBABLE ESTIMATE CURVE OF TRAFFIC DATA FOR SCHEDULED PASSENGER AIRLINES AT O'HARE FIELD

Item	*1956*	*1960*	*1965*	*1970*	*1975*	*Ultimate*
1. Annual passenger movements at Chicago	10,174,000	14,955,000	19,231,000	21,256,000	22,029,000	22,437,000
2. Less Midway fixed number	8,500,000	5,500,000	5,500,000	5,500,000	5,500,000	5,500,000
3. Annual passenger movements at O'Hare	1,674,000	9,455,000	13,731,000	15,756,000	16,529,000	16,937,000
4. Scheduled passenger line plane landings—O'Hare	28,600	153,000	203,000	225,000	236,000	242,000
5. Average seats per plane	49	53	58	60	60	60
6. Average gross weight of scheduled aircraft	61,200	68,400	77,400	81,000	81,000	81,000
7. Annual gallons of gasoline pumped—O'Hare	24,200,000	139,474,000	202,513,000	232,200,000	243,500,000	250,000,000
8. Square feet of hangar rentable	650,000	3,366,000	4,466,000	4,950,000	5,192,000	5,324,000
9. Number automobile parking spaces needed	465	2,630	3,820	4,390	4,600	4,720
10. Number of gates needed—O'Hare	8	41	54	60	64	65
11. Peak hour plane landings	12	57	73	82	85	88
12. Runways required—landing	.8	3.4	3.9	3.7	3.2	3.3
13. Runways required—take-off	.15	.6	.6	.7	.7	.7
14. Military plane movements	78,600	86,000	86,000	86,000	86,000	86,000
15. Plane movements—other than passenger & military	60,000	75,000	100,000	112,000	118,000	121,000
16. Total plane movements	195,800	467,000	592,000	648,000	676,000	691,000

Probable Estimate and the Minimum Estimate. Because the present traffic is so closely following the Probable Estimate curve, which indicates an ultimate potential of 22,400,000 passenger movements annually, statistics relating only to it will be discussed in this paper.

An analysis of the present facilities at Midway Airport indicates that the facilities are capable of comfortably accommodating approximately 5,500,000 passenger movements annually. In reality, nearly 8,800,000 passenger movements were handled during 1955. Needless to say, this caused much congestion and resulted in delays and other inconvenience to passengers. It should be emphasized, however, that it was accomplished without any increase in risk or lowering of safety standards. The CAA operates the control tower and does not permit aircraft to land until they can come in safely. Because of the improvement in landing aids installed at Midway Airport the tower personnel handled nearly three times as much traffic in 1955 as in 1948 and the total accumulated delays due to bad weather were less than one tenth of the 1948 figure. The Midway problem is principally one of ground congestion. The runway configuration as described earlier is capable of accommodating considerably more traffic than the terminal can handle without resorting to double or even triple parking of aircraft at the gate positions.

The O'Hare Field growth is based upon the assumption that during the next several years flights will be transferred from Midway until this optimum figure of 5,500,000 passenger movements is achieved. O'Hare is also to receive all the new medium and long haul traffic which will be generated. Figure 10 contains a tabulation of the growth of the expected O'Hare traffic based on this assumption. Study of it indicated that in a very few years O'Hare Field will become the busiest airport in the world. It also contains many other design criteria which determine the need for items such as gasoline storage, number of gates, hangar areas, automobile parking spaces and number of runways for simultaneous use.

Further extensions of these data were made to study peak hour conditions in the terminal area. In this way it was possible to size the concourse, its incidental public facilities, concession areas and other essential features such as the parking lot, cab stand, and the limousine loading and unloading platforms. Figure 11 indicates the total number of passengers, visitors, spectators and employees in the terminal area for the peak day of the peak month of the ultimate year.

Runway Capacity

In the past it has been considered proper to design an airport for its good weather capacity using one arrival per minute per runway. The reduction caused by bad weather was just accepted more or less philosophically. It was assumed that some day technical improvement would remedy this situation and ultimately the bad weather capacity

would equal the good. As a result, as long as good weather prevailed all would go well; but as soon as bad weather developed, the traffic would stack up due to the poor approach rate.

A new approach to this problem was taken in the planning of O'Hare Field. First of all, if aviation is to grow and to continue to prosper, bad weather delays must be either eliminated entirely or reduced at least to a point where they are comparable to those suffered by the railroads. Because of this fundamental idea sufficient runway

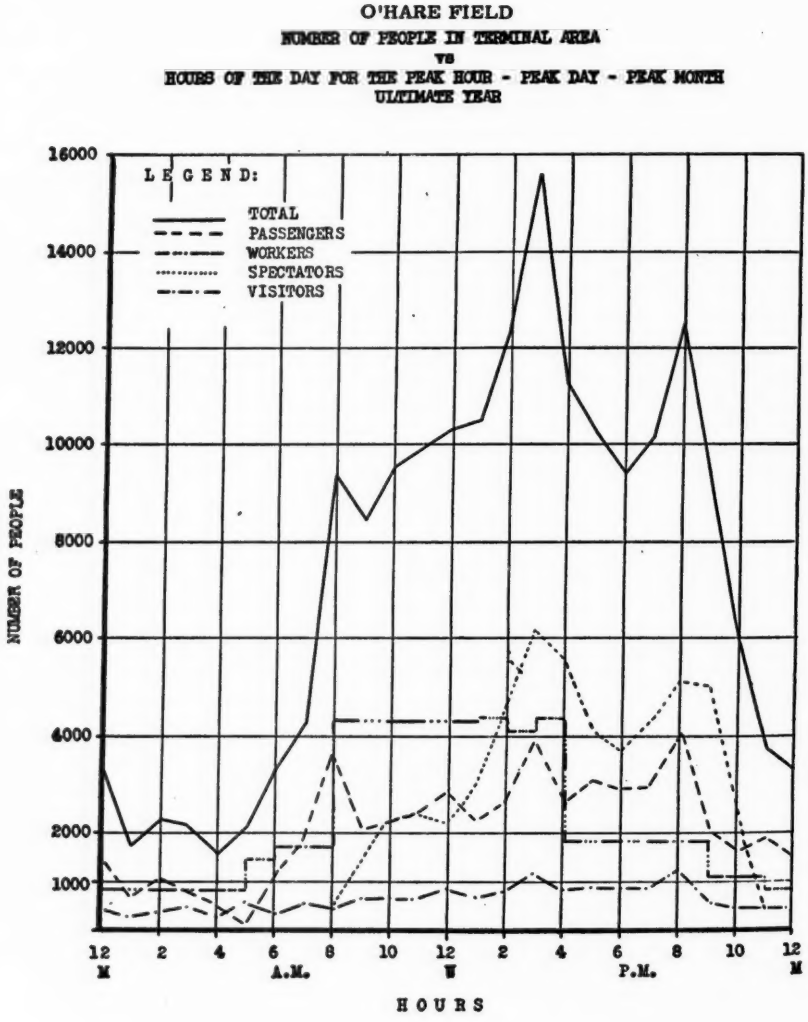


FIGURE II

capacity is being provided for the present day traffic using the average safe approach interval during instrument weather at O'Hare Field. This requires more than one runway because of the heavy traffic. Year by year the arrival rate will be improved as technical developments are made and the capacity will be increased. The increased capacity will be absorbed by the greater traffic which will result as aviation continues to grow. Finally, the point will be reached where the bad weather arrival rate will equal the good weather rate and the capacity will be constant regardless of weather.

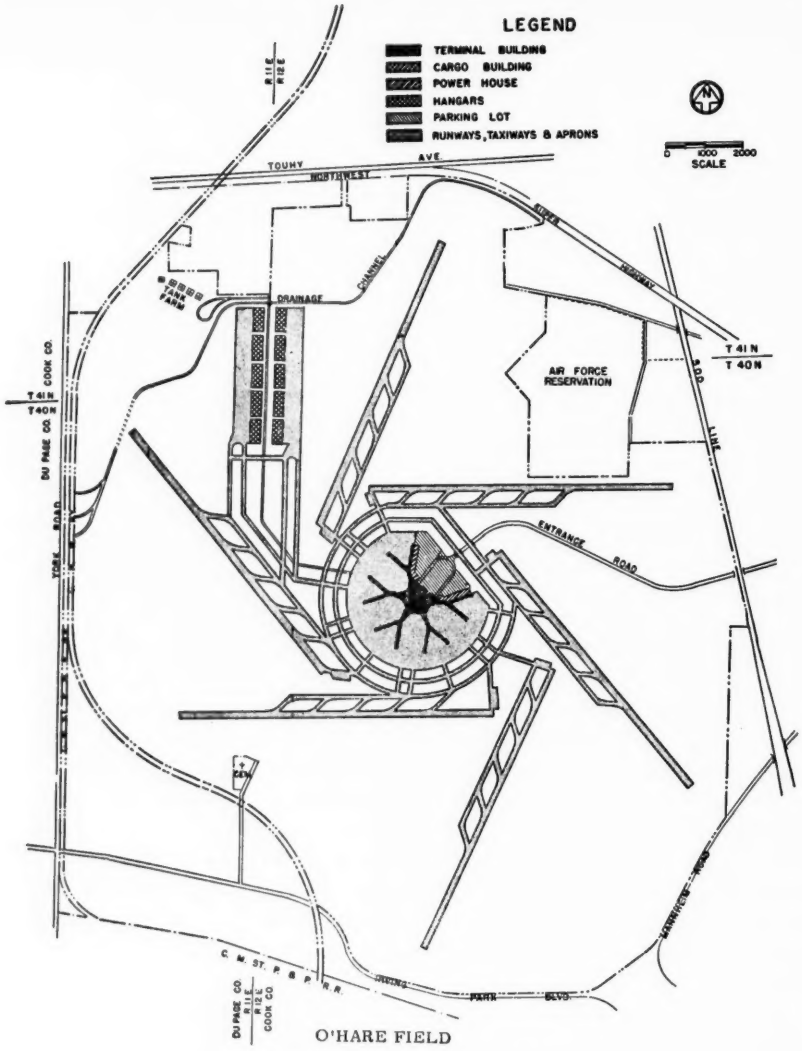
Stage Construction and Financing

The basic concept of the Master Plan for O'Hare Field anticipates many electronic developments for the handling of aircraft, both enroute and in the landing pattern and also on the ground. It further anticipates among other things, the requirements of future aircraft for runway lengths and strengths and apron services. No need exists today for many of these future requirements but the plan is so flexible and comprehensive it will permit increments of the plan to be accomplished from time to time as the needs appear. The steps are sized according to the demands of period for which they will be required and the ability to finance each step as needed. Much study of the various stage requirements has been made to insure that the expansion plan is very flexible. The entire O'Hare Master Plan (Figure 12) is based on the premise that small increments of the total plan can be built independently as the demands are felt and yet they will all be integrated harmoniously into the ultimate plan. The competitive growth of airline A over airline B make it necessary that airline A's facilities must be readily expandable without requiring any major involvement of other airlines. Ideally, the other airlines should not be disturbed at all. In most cases the O'Hare plan will be able to provide for individual expansion most readily. This will be done either by extending the legs of the fingers, by paving the interior portions of the finger or by adding an additional finger at the appropriate time.

While the total development of O'Hare Field involves many stages of construction, only the first three will be described here. They are identified as follows:

1. Initial Stage
2. Stage II
3. Stage III

The Initial Stage was completed shortly before the field was opened for commercial passenger operations on October 30, 1955. Figure 13 indicates the facilities available in this stage. Briefly, it consists of a 16 gate terminal building, a parking lot with room for 1250 cars, an entrance road, first unit of the boiler house, 40 acres of 15 inch concrete

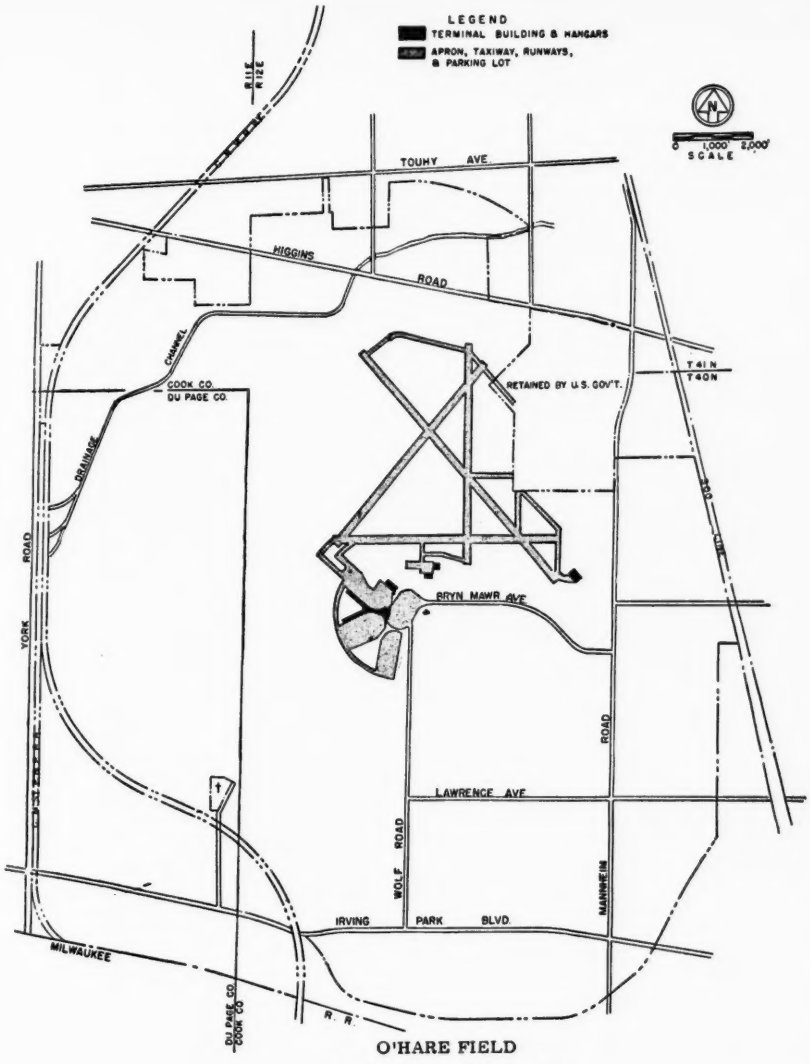


O'HARE FIELD

MASTER PLAN

FIGURE 12

apron for airplane servicing, and taxiways connecting the new terminal area to the existing runways. Included in this stage is the acquisition of about 80 percent of the total land required for the ultimate development. The relocation of the railroad tracks bisecting the site and the consolidation of a swamp in the western portion of the airport is also included. The main sanitary sewer outfall has also been constructed. Among other items included are the seven-story control



O'HARE FIELD

INITIAL STAGE

FIGURE 13

tower, communications and power distribution center, an 800,000 gallon underground gasoline tank farm, much of the underground utility tunnel system, and apron service pits both for fueling and other airplane services. Figure 14 contains a tabulation of the costs of the various items contained in the Initial and later stages. The completion of the Initial Stage required an expenditure of about $20 millions. This money was obtained from the following sources:

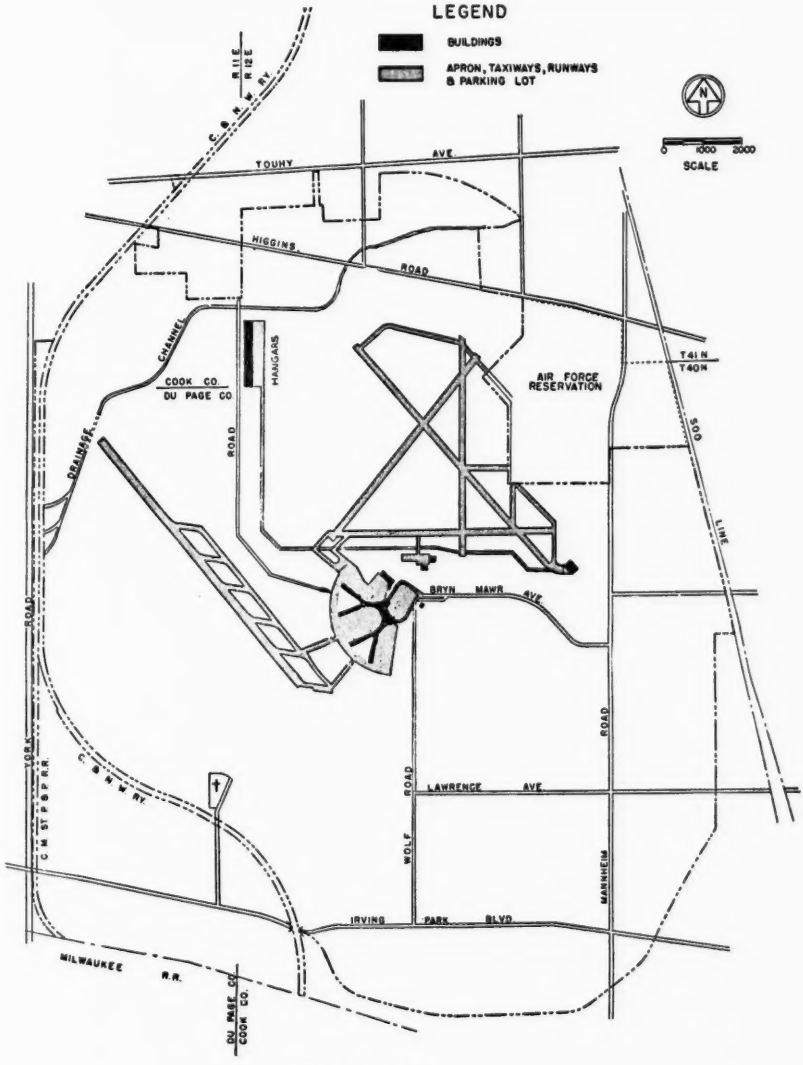
City of Chicago, General Obligation Bonds	$9,000,000
State of Illinois, Dept. of Aeronautics, Grants in Aid	4,140,000
U. S. Government, Federal Airport Act, Grants in Aid	6,835,000

Construction of Stage II is now underway at O'Hare. Figure 15 shows the development upon the completion of this stage. The major

FIGURE 14
O'HARE FIELD
COST ESTIMATE OF DEVELOPMENT STAGES
SHOWING COST OF INITIAL CONSTRUCTION AND BALANCES REQUIRED FOR COMPLETION OF STAGES II AND III

	ITEM	INITIAL STAGE SPENT OR OBLIGATED	STAGE II BALANCE REQUIRED	STAGE II TOTAL COST	STAGE III BALANCE REQUIRED	STAGE III TOTAL COST
1.	LAND	$ 5,579,000	$ -	$ 5,579,000	$ 1,957,576	$ 7,536,576
2.	CLEARING & GRUBBING	22,750	-	22,750	-	22,750
3.	EARTHWORK & GRADING	405,560	382,000	787,560	300,440	1,088,000
4.	FENCING	4,710	39,600	44,310	-	44,310
5.	MARKING	-	18,000	18,000	6,100	24,100
6.	FUELING	1,121,910	336,910	1,458,820	1,275,990	2,734,810
7.	TERMINAL BUILDING	1,638,677	5,314,953	6,953,630	5,907,370	12,861,000
8.	CONTROL TOWER	282,928	-	282,928	-	282,928
9.	CARGO AND SERVICE BUILDINGS	-	767,000	767,000	-	767,000
10.	SIDEWALKS, PARKING & ROADWAYS	251,398	245,000	496,398	175,000	671,398
11.	REMOVAL OF OBSTRUCTIONS	-	12,000	12,000	12,000	24,000
12.	RAILROAD RELOCATION	3,487,890	-	3,487,890	-	3,487,890
13.	LANDSCAPING OR SEEDING	750	15,200	15,950	12,345	28,295
14.	RUNWAYS	-	1,249,000	1,249,000	1,263,000	2,512,000
15.	TAXIWAYS	545,000	1,376,000	1,921,000	671,000	2,592,000
16.	APRON	1,243,970	86,660	1,330,630	175,000	1,506,630
17.	MOBILE EQUIPMENT & OFFICE FIXTURES	-	322,000	322,000	-	322,000
18.	DRAINAGE	426,190	792,000	1,218,190	100,000	1,318,190
19.	SANITARY SEWER	254,401	-	254,401	-	254,401
20.	WATER SUPPLY	154,085	784,915	939,000	200,000	1,139,000
21.	LIGHTING AND COMMUNICATION	570,320	755,680	1,326,000	520,000	1,846,000
22.	POWER AND STEAM	379,352	495,000	874,352	-	874,352
23.	UTILITY TUNNELS	754,840	50,000	804,840	107,000	911,840
24.	ELEVATORS, ESCALATORS, CONVEYORS AND BRIDGES	142,000	492,000	634,000	1,530,000	2,214,000
	SUB-TOTAL	$17,265,731	$13,533,918	$30,799,649	$14,264,321	$45,063,970
	ENGINEERING & CONTINGENCIES	2,210,000	1,466,082	3,676,082	1,135,679	4,811,761
	TOTAL COST ESTIMATE	$19,475,731	$15,000,000	$34,475,731	$15,400,000	$49,875,731

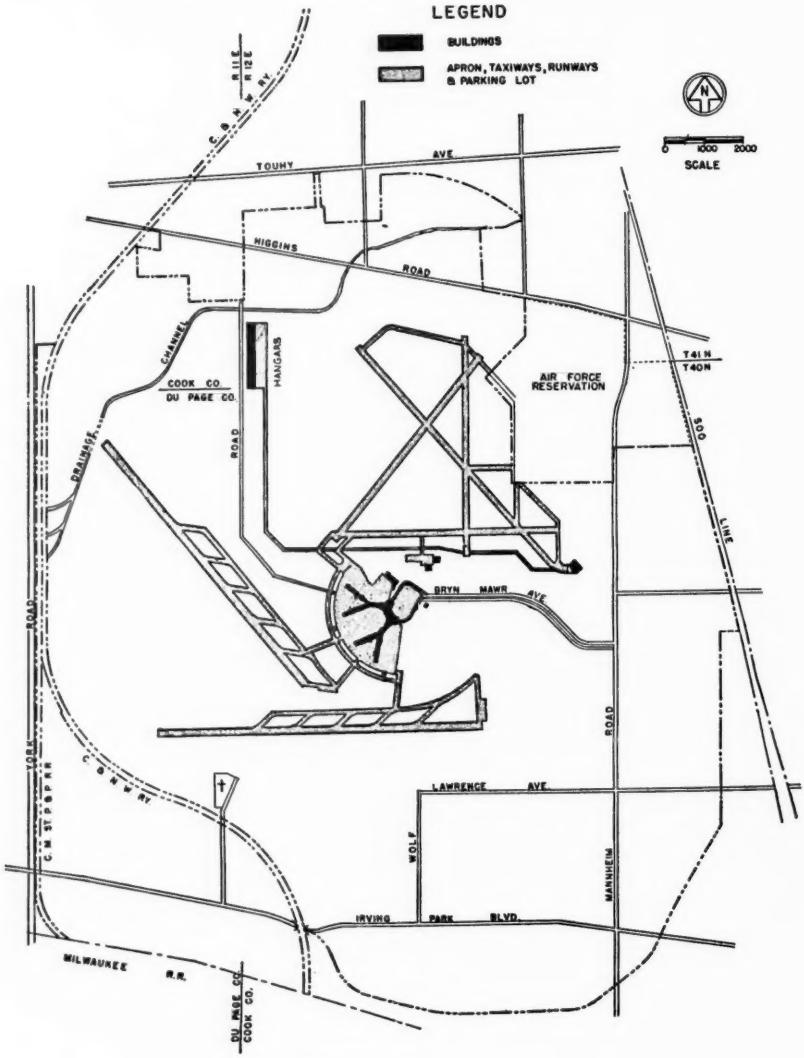
improvements include an 8,000 foot runway paralleling the present 7,350 foot ILS runway. It combines both flexible and rigid pavements. The taxiways leading to the runway and the first 500 feet of the runway are 15-inch thick concrete designed for 100,000 pound single wheel loads. The remaining 7500 feet of the runway and the bleed-off taxiways are flexible pavement. The concrete portions are required because of the operational problems introduced by jet aircraft. The



STAGE II

FIGURE 15

blast velocities, high tail pipe temperatures and fuel spillage have only minimum deleterious effects on the concrete pavement, whereas they may be very damaging to flexible pavements in the areas where airplanes either are standing or moving slowly. The terminal building will be expanded to include a total of 29 gates by partially constructing a second finger. A connecting concourse, including concession and restaurant areas will also be included. Taxiways and utilities to the

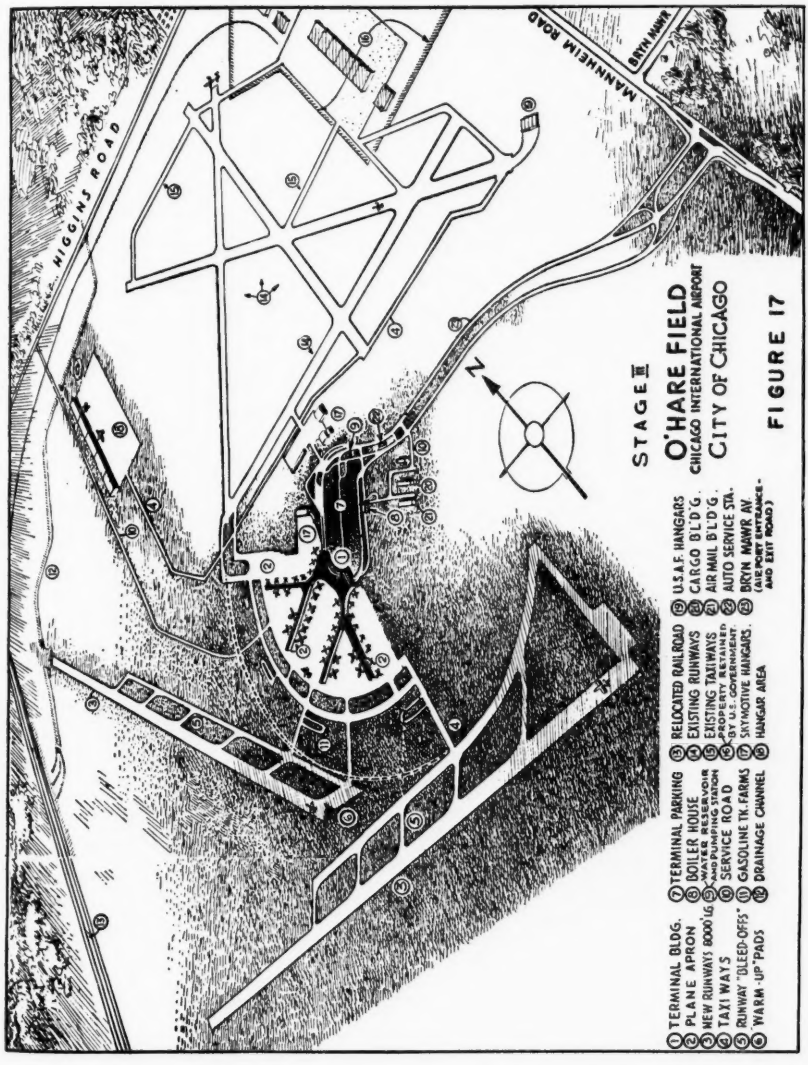


STAGE III

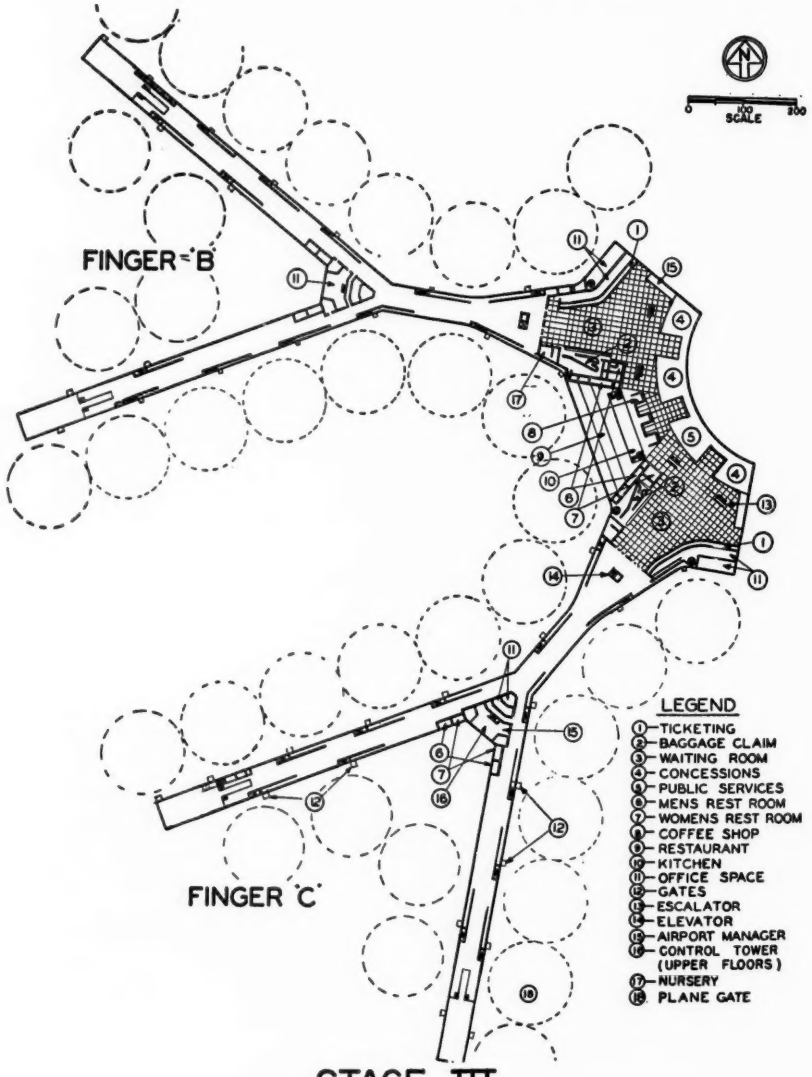
FIGURE 16

hangar area will be built in this stage. Additional buildings to be constructed include a consolidated airline cargo building, the combined airport maintenance shops and mobile equipment shelter, a two-company fire station and the second unit of the boiler house. Three of the four existing runways will be extended in length and will be reinforced by overlaying them with a 3-inch asphaltic concrete surface. This will extend their useful life for at least ten years and defer the cost of several of the new runways for a good period of time. From Figure 14 it is seen that this Stage will cost an additional $15,000,000.

Stage III, which is shown in Figures 16 and 17, will cost an addi-



tional $15,400,000. It will include another 8,000 foot runway paralleling the present east-west runway. At this time the terminal will be expanded again to provide for a total of 37 gates. The upper story of the terminals will be constructed at this time so that second-story loading will then be possible. All of the underground fueling and service



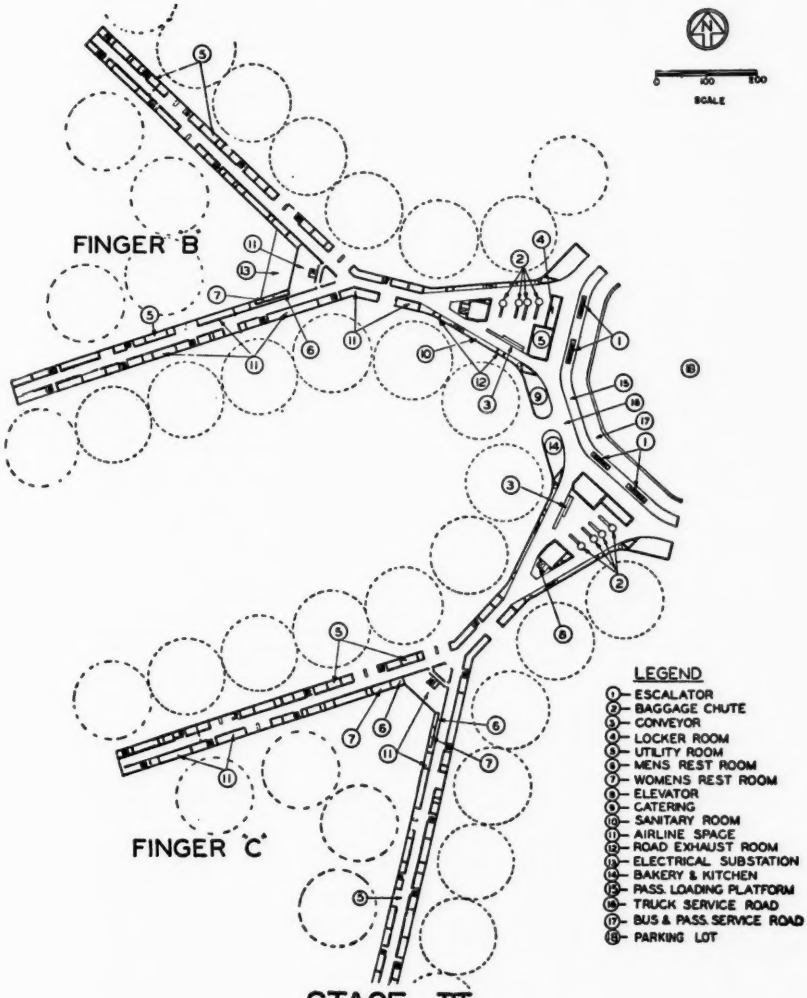
STAGE III
CONCOURSE LEVEL

FIGURE 18

pits will be activated at this time. The balance of the land required for the airport is also to be purchased in this Stage.

Figures 18 and 19 show the arrangement of the concourse level (2nd floor) and the transportation level (1st floor) of the Stage III terminal building. It can be seen that all passenger traffic is separated vertically from the vehicular traffic on the transportation level. The functions of each of the various areas are indicated on these layouts.

It is planned to finance Stage II and Stage III principally from the



STAGE III
TRANSPORTATION LEVEL

FIGURE 19

proceeds of a $26,000,000 revenue bond issue which will be supported by all the airline fees and concession incomes from O'Hare Field. It is anticipated that the balance of the required funds will be obtained from additional State and Federal grants. Construction beyond Stage III will probably be financed in the same manner as Stages II and III. Estimates of the future requirements and their costs indicate that the expansion can be primarily self-liquidating. Any grants received will reduce the amount of revenue bonds required and thus provide better coverages for debt service.

On every major engineering project, the financial structure upon which the project rests is as vital as the very physical foundations which support the improvements. The engineer should be responsible, therefore, not only for the soundness of the structure he plans, but also for the financial integrity of the project.

These financial aspects should guide the physical planning in many respects. It may be stated that it is both desirable and reasonable that airports should be self-supporting. Gone is the day when an airport is merely a monument to local pride. Gone is the day when a set of runways are laid out on some convenient or expedient site and accommodations for the public added as an after-thought. It is now generally recognized that the welfare of a community is dependent on a sound plan for an airport consistent with the present and probable future needs of the community providing air transportation for persons, mail, and cargo.

It is equally true that the airport plan must envision a facility which will pay its way and which will not be a continual drain on the public budget. To this end the capital costs of an airport should be divided between first, the public benefits to be derived from its creation and, second, the proprietary interests it may serve.

Recent studies indicate that a portion of the capital cost of an airport may logically be considered to represent its public benefits to the local community, benefits to the region, generally recognized on the state level, and benefits to the national government, both as a part of a national system of airways for interstate commerce in peace time and for military or other defense activities in times of national emergency.

The balance of capital costs may be considered as the direct responsibility of the users of the airport.

In addition to the debt service on the portions of the cost not attributable to public benefit, the entire cost of maintenance and operation of the airport becomes the responsibility of the airport users. The income from operations, including fees, rentals, and charges for aircraft operations as well as incidental income from concessions and public services must therefore be such that the project will be self-sustaining. The designer of airports is charged with the duty of so balancing the plan as to insure first, adequate service and, second,

facilities so inviting to the public as to secure the use and support which will result in financial stability.

As a guide in establishing such financial stability the designer should allocate costs and assign reasonable returns for the various component parts of the airport, as landing fees for runway use, building rentals, and hangar rental. The analysis should also cover costs and charges for observation decks, auto parking lots, and rentals or charges for a variety of concessions covering incidental services to the public who may patronize the airport.

Legal Aspects

O'Hare Field is about three miles beyond the Chicago city limits. While the bulk of it is located in Cook County for which Chicago is the county seat, about twenty percent of the airport is located in DuPage County. This geographical location has caused some problems in jurisdiction and zoning.

Existing State of Illinois legislation makes it possible for a municipality to establish restrictions on the height of buildings within two miles of an airport even though the airport is outside the city limits. For larger airports this two mile distance is not sufficient since the approach path for an instrument runway extends nearly ten miles from the end of the runway. Because of this, the zoning is being worked out jointly between the two counties involved. This will accomplish the purpose since all of the zoned areas are within the two counties.

In the past there has been some question about the right of airplanes to fly at low altitudes over private property. It is possible to establish zoning which would protect a flight path but which might be a serious invasion of the rights of private owners immediately adjacent to an airport. Recently the Civil Aeronautics Administration has adopted a policy which will partially correct this deficiency. It is a slight modification of one of the recommendations of the President's Airport Commission which was headed by General James Doolittle. The CAA now requires that a community which is requesting federal funds for either construction or expansion of a runway must own or control a strip of land at the end of the runway which is identified as a clear zone. For all runways at O'Hare Field this zone must be at least 1000 feet wide and 2700 feet long. The 50:1 glide path which starts 200 feet from the end of the runway will now be 50 feet high before it crosses into uncontrolled property. This will be a substantial improvement over the previous criteria.

The clear zone requirement was established because a statistical analysis of many airplane accidents for the period between 1938 and 1951 indicated that the bulk of the crashes near airports have occurred in areas adjacent to the end of runways. Because of this, the CAA wants the airport operators to own or control the area to prevent the construction or establishment of places of public assembly. It should be

noted that while this clear zone was not established for zoning purposes as mentioned above it will actually serve to limit the height at which airplanes, in their normal approaches, may fly over private property.

Airport zoning only establishes limiting heights for structures near airports. It does not specify or limit use in any manner. Because of this it is possible for an industry to construct near an airport a blast furnace, smelting plant or any other type plant which would exhaust large quantities of smoke. Needless to say, such air pollution would be most harmful to an airport because of the consequent reduction in visibility. In view of such possible hazard it was recommended that all of the land between the runways be purchased and included as a part of the airport. It is intended that this land will be leased to industries which in their operation will not conflict with airport uses. These sites will be leased for long term periods and provide an additional source of non-aviation revenue. Nearly 2300 acres will be available for industrial development of this character at O'Hare Field. It is believed that this will make it the largest leased industrial district anywhere in the area. The tenants will be furnished streets, sewer, water, police and fire and other municipal services as a part of their ground rent.

Another knotty legal problem was the question of the Air Force's rights to use O'Hare Field. The original deed transferring the 1080 acres to the City contained a provision that they had the right to use the field "in common with others." It also contained the usual statement about the right to "reclaim possession of all transferred facilities and additions thereto" in the event of national emergency. This right has been commonly referred to as the "Recapture Clause." Both the "common use" and "Recapture" clauses have caused many problems in connection with the city's negotiations with the airlines for the use of O'Hare.

In regard to "common use," it might be proper to examine what type of use the military has made of O'Hare Field. There are many different activities based at O'Hare. The largest of these, from a personnel standpoint, is the Air Materiel Command unit which maintains the old airplane assembly plant and operates it as a machine tool storage center. The Air Defense Command unit is the next largest. This activity operates two jet fighter squadrons whose mission is to provide tactical air defense for the northern Illinois area. The Air Force Reserve Training Command supports a Reserve Troop Carrier Wing which operates primarily on Saturdays and Sundays. The smallest activity is the Illinois Air National Guard Unit, which at the present time consists of one jet fighter squadron. This latter use in fact is not covered by the provisions of the deed since it is not strictly a Federal service. In addition to these other uses, O'Hare serves as an operations base for Air Force transient aircraft coming from anywhere in the United States to do business in the Chicago area.

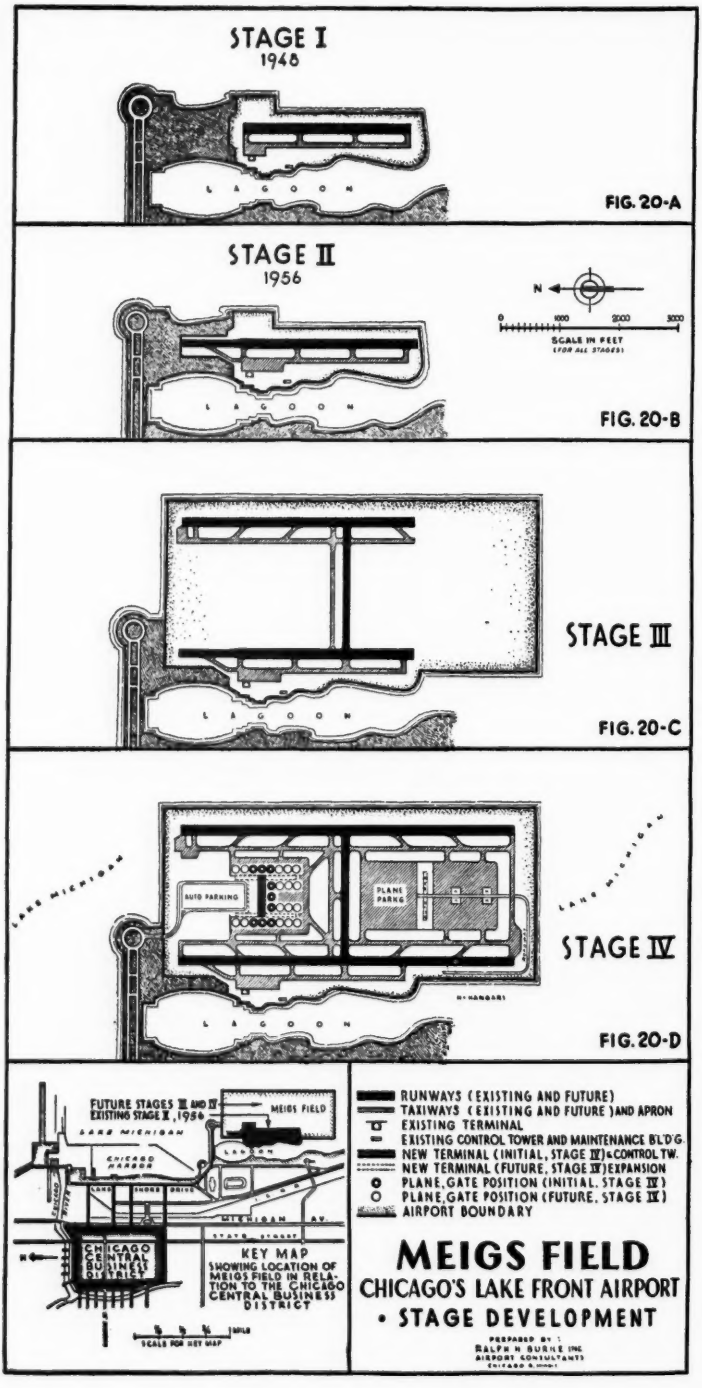
Needless to say, all the above mentioned units generate considerable traffic. For the last five years the military traffic has been more than 60% of the total. It is particularly congested during the week-end and summer training periods. During one two-week training period over 1300 movements were recorded daily on several occasions. This is nearly one landing or take-off per minute for 24 hours around the clock. Because of this large volume of military traffic the airlines were most concerned since they felt that there would not be sufficient capacity at O'Hare Field for all of the traffic which was to be transferred to O'Hare and also that which would result from the future growth of travel by air. This problem reached the critical stage when the Air Reserve Training Command proposed a major enlargement of their unit which would have multiplied their activity about five fold. At this point the airlines and City officials joined forces and made appeals to both the CAA and the Department of Defense to stop any planned expansion and also to cut back the military operations to a reasonable volume.

The airlines were most concerned about the "recapture clause" and what effect it might have on later financing of facilities at the airport. It was their feeling that they might have a difficult time obtaining mortgage financing for the construction of hangars and other similar long term investments if the Defense Department could take possession of the airport merely by serving notice.

Hearings were held before the Airport Use Panel of the Air Coordinating Committee, which is made up of members from all of the principal departments of the federal government which are concerned with air traffic. Some of the activities represented are the Air Force, Navy, Army, Civilian airport operators, CAA and CAB.

The committee became deadlocked with the military units opposing the civilian interests represented and they could not arrive at a decision. Therefore, they submitted their reports to higher authorities and finally a decision was reached at the Presidential level. This decision prevented the training command from expanding their activities and called for a shift of the defense units as soon as funds could be appropriated for a new base to be constructed north of Chicago. The transient activity was shifted to the Naval Air Station at Glenview, Illinois, which is only about eight miles northeast of O'Hare. It was then planned to build a new base at the south end of Chicago which would serve the training command and National Guard Unit. The new defense base is now in the construction stage but the necessary congressional authorization has not yet been received for the new training base.

In the meantime, however, the military activity has been served notice that as soon as the civilian traffic needs the capacity, the military is to cut down to 25 percent of total capacity. This was possible because the deed contains a clause stating that in the event of conflict with


STAGE I
1948
LAGOON
FIG. 20-A
STAGE II
1956
N
0 1000 2000 3000
SCALE IN FEET
(FOR ALL STAGES)
LAGOON
FIG. 20-B
STAGE III
LAGOON
FIG. 20-C
LAKE MICHIGAN
AUTO PARKING
PLANE PARKING
STAGE IV
LAGOON
FIG. 20-D
FUTURE STAGES III AND IV
EXISTING STAGE II, 1956
MEIGS FIELD
LAKE MICHIGAN
CHICAGO HARBOR
LAGOON
LAKE SHORE DRIVE
MICHIGAN AV.
STATE STREET
CHICAGO CENTRAL BUSINESS DISTRICT
KEY MAP
SHOWING LOCATION OF MEIGS FIELD IN RELATION TO THE CHICAGO CENTRAL BUSINESS DISTRICT
SCALE FOR KEY MAP
RUNWAYS (EXISTING AND FUTURE)
TAXIWAYS (EXISTING AND FUTURE) AND APRON
EXISTING TERMINAL
EXISTING CONTROL TOWER AND MAINTENANCE BLD'G.
NEW TERMINAL (INITIAL, STAGE IV) & CONTROL TW.
NEW TERMINAL (FUTURE, STAGE IV) EXPANSION
PLANE, GATE POSITION (INITIAL, STAGE IV)
PLANE, GATE POSITION (FUTURE, STAGE IV)
AIRPORT BOUNDARY
MEIGS FIELD
CHICAGO'S LAKE FRONT AIRPORT
• STAGE DEVELOPMENT
PREPARED BY
RALPH H. BURKE INC.
AIRPORT CONSULTANTS
CHICAGO & NEW YORK

civilian use of the airport the CAA had the authority to limit the amount of military traffic but in no case was it to be less than 25 percent of capacity. Based on this clause, the CAA made a determination of the airport's capacity on a daily and hourly basis, for both IFR and VFR conditions. Copies of this determination were delivered by the City to the Secretary of Defense for further transmittal to the appropriate military units based at O'Hare Field.

It was not possible to amend the deed to remove the "recapture clause" provisions but finally it was decided that this really was not too serious a problem. It was the concensus of opinion that in an emergency the military can readily take any facility it needs regardless of the existence or lack of existence of a deed giving them this right. In view of this, it was considered that the recapture clause would not interfere with future financing.

Meigs Field

As mentioned earlier, this airport is located just 1½ miles from the downtown area and was developed to serve the private and corporate users initially and the local service carriers later.

Because of its convenient location to the central business district Meigs has had a good volume of activity since its start and has experienced a healthy growth each successive year. For the last four years the increases have averaged over twenty percent per year. The number of landings or take-offs since its first full year of operation in 1949 are as follows:

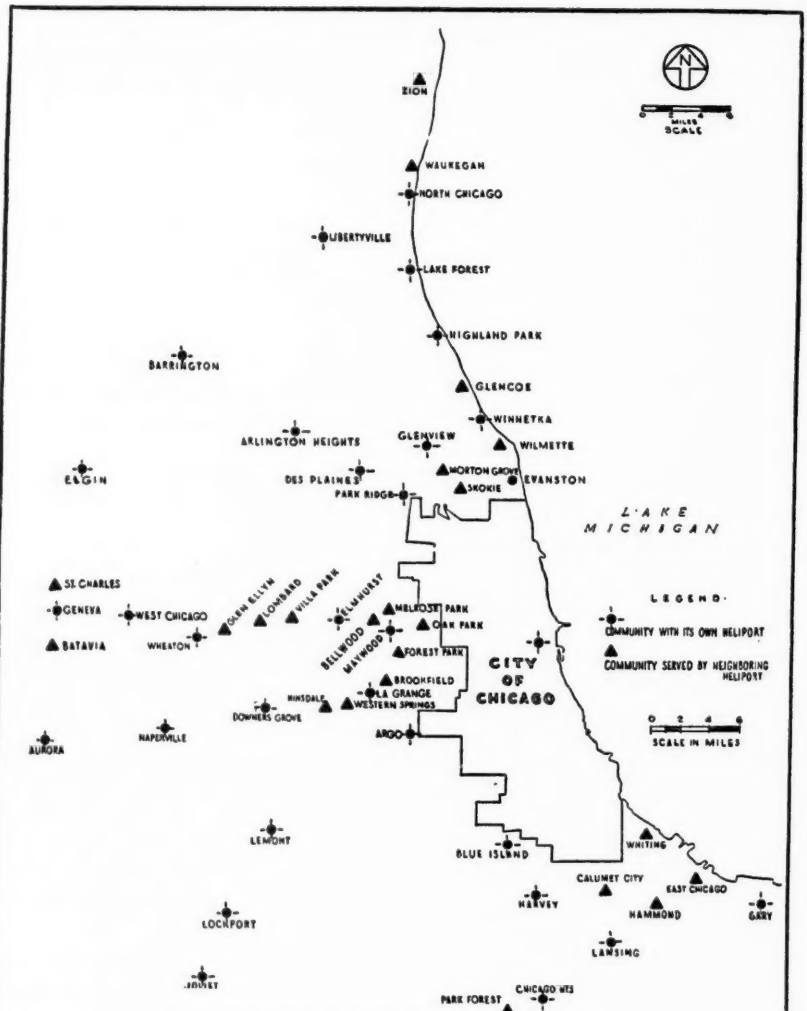
Year	*Total Aircraft Movements*
1949	23,589
1950	25,612
1951	26,394
1952	32,438
1953	37,611
1954	46,573
1955	56,178

The development of this airport is similarly planned for stages. Construction of Stage I was completed early in 1949. This involved the construction of a steel bulkhead and pumping in 800,000 cubic yards of sand fill to expand the island sufficiently to have room for a secondary airport. A 2800 foot runway with a parallel taxiway and aircraft parking areas were constructed. A small temporary terminal building, with an automobile parking lot, and a combination control tower and airport maintenance building were also constructed. These facilities are shown in Figure 20A.

Stage II was completed early in 1956 after the terminal apron was doubled in size, the runway was extended to 3945 feet and a runway lighting system was installed. The new length corresponds to the requirement of a 3500 foot uncorrected length runway for a trunk type airport. The extended runway is now long enough to permit operation

of DC-3's by the local service airlines. It is anticipated that they will initiate operations into Meigs during the latter part of this year. This Stage is shown in Figure 20B.

Stage III requires the construction of a new bulkhead and placing of additional fill. This work will more than quintuple the area of the present airport. At this time a 3945 foot parallel instrument runway, additional taxiways and more aircraft parking areas will also be completed. A shorter runway at right angles to the pair of parallels



COMMUNITIES CURRENTLY RECEIVING HELICOPTER MAIL SERVICE

FIGURE 21

will be constructed to serve the smaller aircraft which are handicapped by cross-winds. It is anticipated that these facilities will be required in 1958 or 1959.

Stage IV will require the extension of both runways to 5700 feet to accommodate aircraft comparable to the Convair and Martin series. At this time the temporary terminal will be devoted entirely to use by corporate, charter and private flyers. The permanent terminal located between the runways to serve the additional anticipated scheduled passenger traffic will be put into operation. Initially, the terminal apron will have to be large enough for about eight airplane loading gates. Its ultimate expansion will require three times this number. Airline maintenance hangars, a large automobile parking lot and other terminal facilities will be required. These are shown in Figure 20D.

The land Meigs Field occupies was leased from the Chicago Park District for one dollar per year for a period of 50 years. Similar to the Chicago Board of Education, which owns the Midway airport site, the Chicago Park District is a separate governmental body having jurisdiction over most of the parks and all of the boulevards within the City of Chicago proper. Not counting the cost of the original site before expansion, the total investment in the airport is $2,200,000.

Heliports and Helicopters

For the last seven years Helicopter Air Service has been flying the mail to over 50 suburban communities surrounding the City of Chicago. These communities and the many heliports from which they operate are shown in Figure 21. H.A.S. has a petition before the Civil Aeronautics Board requesting permission to carry passengers and property in addition to the mail. The CAB examiner who conducted the public hearing on this request has submitted his report recommending approval by the Board. If this is acted upon favorably, it will have tremendous effect on air transportation in the Chicago area.

H.A.S. is proposing to carry passengers over a triangular route serving O'Hare Field, Midway Airport and downtown Chicago. One helicopter would fly around the triangular circuit in one direction and another vehicle would fly in the opposite direction. After this shuttle service between the airports and between the airports and downtown has built up volume, additional equipment will be used to provide service between the airports and the nearby suburban areas. As the suburban service develops, it will be extended until all communities within a 75-mile radius of O'Hare Field will be reached by routes radiating into the various areas requiring service.

The future development of the short haul market in air travel is the last frontier in commercial aviation. The helicopter and other similar vehicles, such as the convertiplanes or STOL* aircraft, can confidently be expected to revolutionize short haul travel. All of these

* Abbreviation for "short take-off or landing" aircraft.

vehicles have one outstanding feature in common, namely, that they can land or take-off from relatively small areas. Because of this, it is possible to locate heliports very near the centers of the central business districts of major metropolitan areas. The unique quality of these vehicles which permits them to operate in the congested areas makes it possible to offer tremendous time savings over conventional surface transportation on the routes H.A.S. is proposing to serve. For instance, at present it now requires about forty-five to fifty minutes to go from Midway Airport to downtown Chicago during rush hour periods. H.A.S. will be able to transport their passengers over this route in seven minutes. Therefore, they will deliver a passenger downtown in about one-sixth or one-seventh of surface travel time during rush hours, and in about one-fourth to one-fifth of the usual time during non-rush periods.

This same advantage will be utilized for trips up to 250 or 300 miles, though the time savings ratios will not be as great. Because of the fact that these vehicles can pick up a passenger in downtown Chicago and deliver him in downtown Detroit or some other similar city it is possible to avoid the long trip to and from the airport. This factor overcomes the drawback of limited top speed in level flight for these aircraft. However, an analysis of time factors involved for travel between two average cities each requiring at least a half hour travel time to reach the airport, indicates that a convertiplane with a top speed of only 250 mph will reach any city within 700 miles sooner than a jet airliner with a top speed of 550 mph. On trips in the short haul segment it is possible to cut the passenger's total time by as much as sixty and seventy percent.

It is this time saving feature which will be responsible for the tremendous expansion anticipated in the short haul market. Our estimates indicate that, when aviation travel reaches its maturity, about twenty years from now, over forty percent of the passengers will be carried in vertical rising aircraft such as are mentioned earlier. Because of these factors we have made very detailed studies of the heliport requirements for the City of Chicago proper and for the Chicago Metropolitan area. It is most important that preparations be made for the heliports well in advance of their immediate need. If nothing else, the sites must be selected and protective zoning be enacted before the mushrooming growth in the suburban areas overruns all the desirable sites.

While there will be heliports developed inside Chicago's central business district to serve the airport and suburban shuttles, all of the short haul traffic in vertical rising aircraft is planned for initial assignment to Meigs Field. Because of the large volume of activity, it is not economically feasible to construct the required facilities in the business district. However, it will be a relatively simple job to provide these facilities at Meigs Field. It is anticipated that the short haul market will be developed by the local service carriers.

General Comments and Conclusion

In planning the airport too much emphasis cannot be placed on the importance of convenient access to the airport. The planner should realize that the passenger's trip begins when he leaves his home or his place of business. The car, cab, or limousine ride are all a part of his whole trip. Improvements in airport to airport travel time is the responsibility of the airlines, but improvement in access to the airport is strictly a local problem. Expressways and rapid transit service to the airport will be very helpful in this respect. In congested cities the helicopter will provide good service to distant suburban areas.

As mentioned in the very first paragraph of this article, air traffic estimates traditionally are too conservative and as a result facilities become inadequate much too quickly. In many cases it is necessary to abandon airports since they cannot be expanded economically. In view of this, it is recommended that future projections be prepared only after sufficient study has been given to the growth potential of the community. By using a high estimate and a low estimate of future traffic the designer can be assured on the one hand that the Master Plan will be capable of handling the larger volume if it develops and on the other the lower estimate will be useful for revenue and expense analyses in connection with financing the airport. If an error is made in over-estimating the higher traffic it will not be serious since it will only result in acquiring a slightly larger site than necessary. Since the total land costs will be only about ten percent of the cost of the project an error in this capital item will be relatively minor. However, an error which results in an undersized terminal can cause the whole airport investment to be placed in jeopardy.

Extensive plans are being made for the requirements of future short haul air travel in the Chicago area. This market will experience a tremendous expansion. As an example, North Central Airlines, a local service carrier operating DC-3s had three flights a day between Chicago and Milwaukee as recently as three years ago. Now they have forty-one flights a day. The round trip coach train fare for this 90 mile trip is $4.24 and North Central's fare is $14.80. By comparison American Airline's fare is $11.30, Northwest Airline's fare is $12.90, and first class rail fare is $7.60. Train service between these cities is most inadequate. The North Central service, which has a fare more than three times as much as rail coach, has been extremely successful because of the convenience offered by the high frequency of schedules. This illustration of development of the short haul potential will be duplicated all over the country in the near future.

The airlines are paid to fly a passenger from point A to point B by the most direct route. Any delays on the ground or in the air result in additional expense by the airline. Stacking delays caused by decreased airport capacity during periods of reduced visibility or congested terminal conditions which result in a loaded aircraft waiting

fifteen minutes to use a gate position for unloading are common examples of this problem. The airlines have no way of increasing their fares when these situations prevail, therefore, the net effect is a decrease in net income. If these needless delays can be eliminated, it will be possible to reduce fares and broaden the market even more. Throughout the O'Hare design many features have been provided which will save seconds in some cases and minutes in others. Some of these items will be described briefly to illustrate the point. First of all, the new runways will be non-intersecting and will be fully instrumented so that landings or take-offs can be made on two or more runways simultaneously. The "bleed-off taxiways" leading from the new runways are designed so that an airplane can safely turn-off at speeds up to fifty miles per hour as compared with turn-off speeds of fifteen to twenty miles per hour on most airports. By providing many exiting taxiways leading from the runway the aircraft will not remain on the runway longer than necessary. Thus, the runway capacity will be increased and more airplanes can be landed per given interval. Warm-up pads are provided at the take-off end of the runway. These are wide enough to permit succeeding aircraft to by-pass either a disabled airplane or one which is awaiting a flight clearance from the CAA. Provision has been made for installation of underground service pits. These pits will eliminate the need for much of the mobile equipment on the ramp and will also make it possible to service the aircraft in a shorter time than now possible. This will reduce gate delays and also result in a less expensive terminal since fewer gates are required. As a passenger convenience item, a self-propelled loading bridge is being provided to load the passenger directly from the second story of the terminal into the airplane cabin. This will eliminate the passenger's descent to the apron, his unsheltered walk across the pavement to the airplane and his ascent to the cabin by means of the portable stairs the airlines currently have in use. While this is intended primarily as a passenger convenience it will permit the airline to operate vehicles safely around the aircraft while passenger loading is in operation and thus further reduce aircraft gate time.

Extreme effort must be made to develop the maximum amount of non-aviation revenue for the airport. Today's airport budgets are big business. Midway's annual income is nearly $2,000,000 and the O'Hare income in the years to come will be more than double that amount. If attractive concessions and services are offered to the passengers, visitors and spectators, they will be patronized widely and provide the terminal operator with income to offset some of the heavy expense of maintaining the landing area facilities.

The airport design must be economical. In no way should the buildings be monumental in character. By careful selection of building materials available to the designer it is possible to provide buildings which are functional, easily maintained and attractive. The overall appearance is important from a civic pride standpoint since

this is the first contact that the air traveler will have with the city. As more and more people fly, this becomes of increasing importance. In most cities the railroad tracks lead through the least attractive parts of the cities on their approach to the center of town. Unfortunately, the traveler tends to form an impression that these sights are typical of the whole city. An attractively landscaped superhighway connecting the airport with the center of the city will do much to create a better impression.

Finally, because of the detailed study of the many factors involved, and the fact that the Master Plan for O'Hare Field is so far-reaching and capable of flexible development it is confidently believed that this is one airport which will grow with the traffic and not be obsoleted either by increases in traffic or by changes in the character of the traffic throughout its useful economic life.

EDITORIAL

TRANSPORTATION CENTER TO SPONSOR THE JOURNAL OF AIR LAW AND COMMERCE

With this issue the Journal of Air Law & Commerce begins a new volume (No. 23) and a new administrative pattern. From now on the Journal will be published by the Transportation Center at Northwestern University. Editorial policies and personnel will remain the same.

The Transportation Center was established at Northwestern University to carry on a broad program of education and resarch in all areas of transportation. The Center, working through the appropriate schools and colleges at Northwestern, will provide:

- graduates able to assume positions of responsibility in the transportation industries, government, and other universities.
- objective research to help industry and government arrive at sound answers to basic transportation questions.
- a specialized reference library.
- a central clearing house to gather and disseminate information on transportation research, new developments, and personnel.
- consultative services for solving specific transportation problems.
- in-service training programs for personnel in the transportation field.
- facilities for conferences, seminars, and lectures.

The Center, although part of Northwestern University, will work with other universities and research agencies to avoid duplication of effort and to make the best possible use of the country's available resources. Financial support for the Center is being provided by the transportation industry, general business, and from foundations. Academic education programs will get underway in the 1956-57 school year and some research projects will begin this spring. Further information about the Center may be obtained by writing to 1818 Hinman Avenue, Evanston, Illinois.

With this issue the Journal abandons its traditional cover format and adopts a contemporary cover with an attractive photographic background.

The Journal will continue to be dedicated to providing a forum for the publication of worthy material dealing with the legal, economic and political problems of air transportation. The importance of such

a forum is today enhanced by the increasing impact on our civilization of the general acceptance of air travel, its increased speed, comfort and reliability. And with the advent of supersonic propulsion and plentiful atomic power, the importance of preventing legal, political and economic "grounding" of air transportation increases.

Informative essays and thoughtful discussions of the many controversial issues confronting aviation are sought and readers are encouraged to submit manuscripts. Editorial inquiries should be made directly to the Editor-in-Chief, Professor Edward C. Sweeney, at a new editorial office in Washington, D. C.—Suite 1300, 1700 K Street, N. W. In carrying forward the policies of the Journal, the Editor and the Director of The Transportation Center will be assisted by an enlarged Editorial Advisory Board composed of qualified aviation leaders among lawyers, teachers, economists, public officials and industry spokesmen.

RECENT ADDRESSES

THE PROMISE OF HELICOPTER TRANSPORTATION*

BY RAYMOND SAWYER
Executive Director, Civil Aeronautics Board

THE helicopter is so new that most of us who, for example, were in World War II, never even heard of it until late in the war, if at all. It was not until the first year of World War II that a helicopter was flown successfully in the Western Hemisphere.

Remarkable it is, then, that less than 10 years after the war, the helicopter manufacturing industry had progressed to where 11 different helicopter models were in production, 14 were in the prototype stage, and 9 were in the design stage. Fifteen thousand people were employed in their manufacture, and sales were averaging better than $150 million a year. The manufacturers' backlog of helicopter orders had reached $550 million (more than ½ billion) by the end of 1954.

Moreover, in this short span, an unbelievable amount of safety has been built into this vehicle. So much so that in 6 years of scheduled helicopter passenger service, in Europe and the United States, there has never been a passenger fatality; and whereas one of the major accident hazards in fixed-wing flying is engine failure, our records show that there has never been a fatal accident, due solely to engine failure, in any kind of civilian helicopter operation, scheduled or nonscheduled, commercial or private.

Truly this is an historic record and I am very sure every person in this room is proud, either to have had a part in creating this record, or to join with me in tribute to the engineers, designers, manufacturers, workmen, operators, and pilots responsible for it.

Government's Role

The United States Government has not, of course, been a disinterested bystander to this remarkable development. The military departments have encouraged and paid for the major development costs of this vehicle, and the Civil Aeronautics Board has footed the subsidy bill for the operations of the three scheduled helicopter lines in Los Angeles, Chicago, and New York.

The development costs have run between $100 million and ¼ of a billion dollars to date and the present subsidy bill is now almost $3 million a year.

Some of you may think the civilian branches of Government are always behind the times. So it may come as a surprise to be reminded that the Civil Aeronautics Board scheduled its first prehearing conference in a helicopter application as long ago as April 1944. That was in the Los Angeles Helicopter Case. Because the war still was in progress and there was no equipment, the hearing was postponed. But the Board, with the support of the Post Office Department, did award a certificate to Los Angeles Airways to operate a scheduled helicopter mail service in May 1947. At that time the Board said in its published opinion:

> "We do not believe that its present high cost of operation alone should deter the experiment since a more economical helicopter may be anticipated just as more economical conventional aircraft have been developed."

* Remarks to the Eighth Annual Convention of the Helicopter Association of America, at the Sheraton Palace Hotel, San Francisco, California, January 24, 1956.

> ". . . the potential of the helicopter in commercial air transport is unknown and whether the service proposed can be maintained on an economically sound basis with substantial public benefit is a matter which can be established only by experience."

Subsequently, Los Angeles Airways was authorized to carry passengers.

The following year, 1948, the Board certificated the Helicopter Air Service in Chicago. In rebuttal to evidence showing that trucks could perform the service for $75,000 a year rather than the $437,000 estimated for helicopters, I quote again from the Board's opinion, not merely to document the Board's vision and courage (because these cases were decided during a period of airline economic depression) but to indicate to you that the Board has been, and still is, an active partner in the helicopter venture, and is fully as anxious to develop helicopter transportation as you are. The Board said:

> "It is, of course, clear that the operation of trucks could be conducted at a substantially lower cost to the Government than the helicopter service. However, there are, we believe, considerations of broad national interest which justify the inauguration of the proposed helicopter service on an experimental basis. Moreover, further development of the helicopter and the experience to be gained from the operation are desirable in the interest of the national defense." (1948)

In 1951, the Board certificated New York Airways to carry both mail and passengers, and there is now pending before the Board a passenger application by the Chicago carrier.

The first two certificate authorizations, in Los Angeles and Chicago, resulted from unanimous Board decisions. However, the Post Office Department did not support the New York application and the Board Members were divided four to one.

The then Chairman of the Board dissented on the grounds that the two experimental operations in Los Angeles and Chicago would give the Board and the industry as much information as three operations; and that the Board should not further increase the Federal Government's subsidy for this form of transportation.

Last year, the Post Office did support renewal of the Chicago certificate, but added that it did not favor more than the present three operations pending production of a more economic helicopter.

Return on Investment

In return for this large investment by the military and the Civil Aeronautics Board, the people of the United States have received many benefits. Everyone knows of the 22,000 servicemen rescued behind the lines in Korea; and of the dramatic helicopter rescues made during the floods in New England last Fall, and just North of here in California last month, when hundreds of lives were saved. These benefits represent savings in human lives which can never be measured in dollars.

Without reciting the many combat innovations introduced into the Korean War by the use of the helicopter, suffice it to say that the development of this machine has revolutionized the tactical deployment of combat troops.

A surprising amount of the military progress of the helicopter is due directly to the rigorous experimental laboratory provided by the civilian commercial helicopter operator. The military testified at great length, at Board hearings this past year, to many specific examples of new learning from the experience of civilian operators. One of the most dramatic was the ungrounding of a large part of the military helicopter fleet at the height of the fighting in the Korean War. The service life of the tail rotor gear box on the H-13 had been listed at 300 hours. The fleet was grounded for lack of replacement gear boxes. Based on the experience of one of the civilian helicopter operators in using these gear boxes 600 hours, the Army

was able to double their service life by a simple field order, and thus put the fleet into the air again without jeopardizing the life of a single pilot or soldier-passenger.

Likewise, the Army has used civilian operators to build up engine time quickly in order to evaluate solutions developed by manufacturers to overcome spark plug fouling and valve burning. The useful life of Army rotor blades was doubled by an increase from 900 to 1800 hours. The civilian operators also have saved the military untold man-hours, and many dollars, beyond estimation, by furnishing the military with complete data on fuel consumption, and on time studies for removing and inspecting engines and rotor blades and for major overhaul.

The passenger operations of the civilian carriers also have earned widespread public acceptability and they have commanded the respect of the major airlines, practically all of whom have entered into interline passenger agreements with New York Airways.

Truly, the helicopter has won the hearts of the American people.

So much for the past, and so much for the Board's role in that past. Now, what of the future?

Jet Airports and Traffic Jams

Paradoxically, I believe that the fast-moving jet age in long-haul air transportation will usher in the slower-moving helicopter age in short-haul air transportation. The week before last, the Civil Aeronautics Administration sponsored an all-day meeting in Washington to discuss the problems which will arise from the use of jets in commercial air transportation. After that meeting the Airport Operators Council stated:

> "We know that turbojet aircraft, in their present configuration, without effective noise-reducing devices, will not be acceptable to the public. We believe that the operation of such aircraft into congested areas could jeopardize the success of any program for the use of turbojets."

This statement was endorsed by the American Association of Airport Executives, the National Association of State Aviation Officials, and the American Municipal Association.

Recently the Port of New York Authority refused to allow the Boeing 707 prototype and the British Comet III to land at New York's International Airport. The Port Authority explained that it was having enough trouble with its neighbors over the noise from conventional piston engines without playing host to the two big jets.

If the noise problem is not solved, there will be a growing demand to locate future large jet airports farther away from downtown.

But, aside from noise, there is—air traffic! Year-end estimates show that air traffic increased 20% in 1955, more than 50% greater than the increase the previous year. Moreover, in 8 years the number of takeoffs and landings recorded by the CAA increased from 4 million in 1946 to 12 million in 1954, a 3-fold increase in total traffic. The estimate for 1960 goes to 18 million takeoffs and landings, and these figures do not include traffic at military airports, nor the millions of takeoffs and landings at small fields, for which the CAA keeps no records.

The conclusion seems inescapable that the advent of the jet transport, and the continuous increase of air traffic, will increase the need for the large jet airports of the future to be farther from downtown.

It is also doubtful whether the air traveler is going to be satisfied to fly from coast to coast in 4 hours, and then be forced to spend another 2 hours getting his baggage and fighting surface traffic to and from the airport.

Even now, with piston engines, and notwithstanding the excellent location of the new San Francisco airport, the average airline passenger who flies between Los Angeles and San Francisco in one and one-half hours will spend more time than that riding to the airport, checking in, getting his baggage after the flight and riding into town from the airport. The introduction of jets will only serve to emphasize this disparity, and point up the futility of linking fast intercity air travel with slow airport-to-city surface travel.

You hardly need to be told that the helicopter supplies the tailor-made answer, provided, of course, that we have heliports in or near city centers. The helicopter also can relieve much of the air traffic jam if it comes into general use in the short-haul market, because it flies in a separate traffic pattern of its own, underneath the flight patterns of fixed-wing aircraft.

Short-Haul Market

Still another market, a fabulously large market, as yet untapped by air transport, is crying for the helicopter. About 438 million passengers in 1954 traveled by common carriers on short-haul trips of less than 250 miles. The airlines carried only 2¼% of these short-haul passengers, whereas the airlines carried 75% of the passengers who traveled over 1000 miles.

Stated another way, 89% of all passenger common carriage in the United States is on trips of less than 250 miles, and the airlines carry only 2¼% of that mass market. The public has been amazed by the unprecedented growth of the airlines in the last 10 years. Yet, the airlines carried only 32 million domestic passengers in 1954, short-haul plus long-haul, compared to the 438 million who traveled, almost entirely by railroads and buses, in short-haul travel. Stated a third way, as great as the airline growth has been, railroads and buses still carried 14 times as many passengers in short-haul transportation alone as the airlines carried in short-haul and long-haul put together. I repeat, *as great as the airline growth has been, railroads and buses still carried 14 times as many passengers in short-haul transportation alone as the airlines carried in short-haul and long-haul put together.*

Historically, the air transport industry has been unable to compete in the short-haul market because of the time it takes to travel over congested surface highways between airports and city centers, and because of the increase in toll roads. If Congress enacts a new Federal highway program, new impetus will, of course, be given to the construction of additional super highways. Again, the helicopter is tailor-made for this type of operation, but, again, only if it is furnished with centrally located heliports.

Short-Haul Segments

In a paper presented to the Airport Operators Council meeting at Tampa, Florida, in April 1954, L. Welch Pogue (Washington attorney and former Chairman of the Civil Aeronautics Board) and Grahame H. Aldrich (Director of Special Projects, Air Transport Association's Division of Air Transport Economics) concluded that if a suitable helicopter had been available, it would have replaced 37% of all fixed-wing aircraft schedules in 1953. Last year, Mr. Aldrich presented a study showing that at the 24 largest airports in the United States as many as 29% of all flights depart for or arrive from cities less than 125 air miles away. At the 32 next largest airports, as many as 48% of all flights are operated to or from cities less than 125 air miles away.

Inasmuch as these 56 largest airports handle 82% of the industry's total revenue passengers, it follows that presently existing flights from the major airports of the nation actually serve an unbelievably large number

of short-haul *segments* for a practically negligible amount of short-haul *traffic*. At the remaining 495 airports from 60 to 98% of the flights operate to or from cities less than 125 miles away.

The cities on both ends of these 125-mile segments would receive far better service with helicopters operating from mid-city heliports than they can possibly ever get with fixed-wing schedules between airports with the attendant agonies of slow surface travel over congested highways at both ends of the trip.

Manufacturers' Market

The domestic scheduled airlines now have in service 627 twin-engine aircraft. If the operators of these aircraft could be induced to replace them with 35- to 50-place multi-engine helicopters selling for $500,000 to $750,000 each, the helicopter manufacturing industry would have a new, immediate, potential civilian sales market of $470 million.

Moreover, if the air transport industry ever moves into the 438 million passenger short-haul market, think of the additional possibilities open to the helicopter manufacturing industry! The Aldrich study forecasts the possibility that inter-city helicopter services, operating out of downtown heliports, could capture 50 million of this 438 million passenger market by 1965. That would automatically more than double the number of air passengers now carried by the entire domestic air transport industry, long-haul and short-haul. If such a development resulted only in doubling, in helicopters, the capacity of the present airline fleets of twin-engine aircraft, the sales potential for the helicopter manufacturer would soar to almost a billion dollars.

Heliports and Helicopters

However, this goal can never be reached without downtown, mid-city heliports. For, in order to compete with surface carriers, the helicopter operator must also offer passengers as convenient access to heliports as they now have to railroad stations and motor bus terminals. Moreover, without mid-city heliports, the time saving of rotary-wing aircraft would be lost in the city-to-airport surface travel.

Both of the scheduled airlines (National and Mohawk) which experimented with the Sikorsky S-55 as an adjunct to their fixed-wing fleets abandoned operations, because of the small capacity of the vehicle (though they were prepared to assume some losses) and especially because of their inability to obtain mid-city heliports in New York City and Miami Beach. The President of Mohawk Airlines stated his belief that the future of his company lies in the operation of large, twin-engine transport helicopters, but added a comment certainly of interest to everyone at this Convention. He said:

> "Were I a helicopter manufacturer, my sales staff would be more concerned with community education as to the potential of scheduled helicopter service . . . and of community planning for it, than with selling . . . airlines on the potential of the machine."

When it is remembered that such European cities as London, Brussels, Rotterdam, and Bonn now have centrally located heliports, we must conclude that the city planners and city fathers in our own country, who are not ready for this new advance in aviation, are retarding the logical and legitimate development of the helicopter.

Likewise, the goal of developing helicopter passenger operations cannot be reached unless the manufacturing industry produces a multi-engine 35- to 50-place helicopter which incorporates, at least substantially, most of the characteristics recommended by the Rotorcraft Committee of the Air Transport Association. The British also have expressed essentially the same

requirement, a 45- to 50-place, twin-engine, quiet vehicle with a cruising speed of 150 miles an hour.

The subsidy figures required to operate the small helicopter now in scheduled service speak for themselves in pointing up the need for a larger vehicle. The average price of each passenger ticket sold by New York Airways is $7.44. The CAB subsidy per passenger carried by New York Airways averages $48.99. The figures for Los Angeles Airways are even higher.

It was indicated at the manufacturers' panel yesterday that all the manufacturers are working toward our desired goal, and I understand that Bell, Piasecki, and Sikorsky now have helicopters which come close to meeting these requirements.

Twin engines are required, not only for safety, but in order to keep the take-off and landing approach line in the downtown areas of large cities as small as possible. Such a vehicle also needs engines designed for it. Maintenance costs on the piston engine presently in use by passenger-carrying, scheduled helicopter operators are three times higher than overhaul costs for the same engine when used in fixed-wing aircraft. (You know the reasons for this better than I do, but I assume it's because of vibration and the necessity for operating with high-power settings.)

Gas turbine engines, on the other hand, seem to be ready-made for rotary aircraft. In addition to being smaller and lighter, the turbine operates at optimum fuel consumption at the high power settings required by the helicopter. The turbine is easier to service, creates less cabin noise, and causes less vibration. It should thus contribute to greater passenger comfort, to a longer operating life for the engines and air frame, and should reduce pilot fatigue—not an insignificant factor in presently designed rotorcraft.

Horizon Unlimited

Yes, the future horizons are indeed unlimited—or if limited, then only by the timetable of American industry to meet the challenge of our time—to meet that challenge by producing the helicopter which will open up the new helicopter transportation age. When American industry has met that challenge, and we have a multi-engine, economic, 35- to 50-place helicopter, which has a reasonable chance of operating commercially without government subsidy—when that challenge is met, I am certain you will find the Civil Aeronautics Board, now as in the past, not only willing, but anxious to join with you in doing its part to further this new dimension of air transportation into the wonderful era we all know it will be. I know that no one can stop your progress.

INTERNATIONAL REVIEW

I.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

EUROPEAN CIVIL AVIATION CONFERENCE

The First Session of the European Civil Aviation Conference, convened on 28th November 1955 at Strasbourg, France, by the Council of the International Civil Aviation Organization, ended on December 20th, 1955, after extensive discussion on the possibilities of a standardization of regulations and a more integrated system of economic arrangements in Europe, an area where these problems are particularly important.

The Conference agreed on a constitution and on its working methods. It prepared a draft multilateral agreement for rapid solution of the problems involved in the organization of the non-scheduled services in Europe. A lengthy exchange of views took place in connection with the discussion on a multilateral agreement for intra-European scheduled services and in connection with recommendations for an orderly solution of the problems involved in the interchange of aircraft and in helicopter services.

There are several reasons why most of the 18 European countries represented at the Conference regard better coordination and a liberalization of air transport in their part of the world as desirable. The frequency of services is still relatively low on European networks, the utilization of aircraft is lower than on the domestic networks of the United States and the revenue-producing ability of European airlines is considered rather poor.

The creation of the European Civil Aviation Conference reflects the common desire of European states to deal with specific aspects of air transport within the boundaries of Europe and to remove obstacles to a better coordination of air services in this part of the world.

The Conference chose as its President Pierre Nottet of Belgium and as its three Vice-Presidents Luis de Azcárraga of Spain, Alf Heum of Norway and Antonio Ambrosini of Italy. The Council of ICAO was represented at various stages of the discussion by its President, Dr. Edward Warner, and its First Vice-President, Mr. Henri Bouché.

Constitution of the European Civil Aviation Conference

The Conference will call its own meetings and fix its own Agenda. It will maintain close liaison with ICAO. It will hold annual plenary sessions, the main task of which will be to review the development of intra-European air transport in order to promote coordination, better utilization and an orderly development. Financial arrangements for the Conference will be considered at a meeting to be held concurrently with the Tenth Session of the ICAO Assembly at Caracas, Venezuela, in June, 1956.

Draft Multilateral Intra-European Non-Scheduled Services Agreement

The Conference prepared a draft agreement establishing freedom of operation for a number of categories of non-scheduled commercial flights, for example (1) aircraft engaged in humanitarian or emergency missions; (2) transportation of passengers in air taxis, that is small aircraft with a maximum seating capacity of six passengers; (3) charter flights when there is no resale of space; (4) any flights which have a maximum frequency of

once a month; and (5) all freight and passenger operations between regions which have no reasonably direct connection by scheduled services.

This draft agreement, which applies to the metropolitan territories of states situated in Europe and to the part of Asia Minor adjacent to Europe, will become open for signature at the ICAO Regional Office in Paris from April 1956.

Interchange of Aircraft

Interchangeability of aircraft refers to the ability of airlines operating internationally under governmental agreement or authorization to use aircraft belonging to a foreign airline and registered in a foreign state, with or without using the crew of the aircraft.

The Conference considered it would be useful if the problems connected with interchange of aircraft were examined by a "study group." It recommended that the legal consequences of agreements concerning interchange of aircraft without crew, when the transfer of functions of the state of registry to the state of the operator is envisaged, should be considered by the Legal Committee and by the Council of ICAO in order to determine whether an international convention on the hire and charter of aircraft is necessary.

Helicopter Ferries

Helicopter services problems differ from those connected with fixed-wing aircraft services. The conference exchanged views on the problems raised by the development of helicopter services and heliports, and concluded that improvements are necessary as far as operating economy, safety, all-weather operation and noise reduction are concerned. The attention of states was drawn to the necessity of safeguarding adequate sites for future provision of heliports in central locations of cities.

The question of helicopter services will be on the Agenda of the next ICAO Air Navigation Meeting in the European/Mediterranean Region.

Views on Multilateral Intra-European Scheduled Services Agreement

There was a wide exchange of views regarding the principles which ought to serve as a basis for a multilateral agreement on an exchange of commercial rights for intra-European scheduled air services. The Conference recognized that the time has not yet come to attempt to develop a multilateral agreement to replace the bilateral agreements in Europe.

Some delegations emphasized that in their opinion cooperation "in the two levels of governments and airlines" was the policy which could best obtain the greatest improvement in the situation. Advocates of this approach preferred a formal declaration by the states that were represented to the effect that they favored direct services between states and would refrain from opposing the establishment and operation of air services of other member states unless they considered such services actually harmful to their own national airlines, or decided that they did not serve the best interests of the users. Other delegations considered that more promising immediate results could be obtained by concentrating on "cooperation between airlines" and that the role of governments should be limited to the facilitation of such cooperation.

The delegations that supported this view pointed out that, in fact, some major airlines already had made considerable progress in cooperating among themselves during the last 18 months. The following 18 countries were represented by delegations: Austria, Belgium, Denmark, France, the Federal Republic of Germany, Greece, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, United Kingdom, Spain, Sweden, Switzerland and Turkey. Nine countries had sent observers: Canada, Egypt, Israel,

Japan, Lebanon, Liberia, Mexico, United States, and Yugoslavia. Of international organizations the following were present: Council of Europe, United Nations Economic Commission for Europe (ECE), Organization for European Economic Cooperation (OEEC), European Conference of Ministers of Transport (ECMT), International Chamber of Commerce (ICC), International Federation of Airline Pilots Associations (IFALPA), International Union of Aviation Insurers (IUAI), Air Research Bureau (ARB), International Air Transport Association (IATA), Institut du transport aérien (ITA).

TECHNICAL ASSISTANCE PROGRAM FOR 1956

Details of the International Civil Aviation Organization's technical assistance plans for 1956, which include regional projects in Latin America and the Middle East and aid to 27 countries, were announced here by ICAO Secretary General Carl Ljungberg. Total cost of next year's program, which is part of the Expanded Program of Technical Assistance of the United Nations and the Specialized Agencies, will be $1,146,750.

ICAO's participation in the Expanded Program of Technical Assistance is based upon the fact that, in many of the less developed countries, quick improvement in the means of transport is essential for their economic expansion. Roads, railroads and waterways are often few in number and poor in quality; in some countries no channels of communication exist other than camel or donkey tracks. Under these circumstances aviation offers very speedy transport in return for a much lower capital outlay than is necessary for the construction of roads and other means of surface transport. But the development of civil aviation for national and international air transport requires the construction and operation of aerodromes, the training of mechanics and other technical personnel, the provision of radio, meteorological and air traffic services. The ICAO program therefore brings knowledge and experience from those countries which are technically advanced. Under the Technical Assistance Program, emphasis is on advice and training with the intention of helping states to help themselves.

Nationals of the less developed states have been trained in their own countries when the number to be trained is large, and in other countries when training is more specialized. Missions have established technical training centers; fellowships have been granted to permit study in advanced countries; on-the-job training has been carried out in many nations.

Included in the 1956 program are the following:

Latin America. The civil aviation center originally established in Mexico City by ICAO and the Government of Mexico in 1953 for the training of all categories of civil aviation personnel is now being transformed into a regional center for Latin America. More than 200 mechanics, wireless operators, air traffic controllers, aeronautical inspectors, and other technicians required to operate and maintain safe aeronautical services, many of them from other Latin American countries, have already graduated, and estimates show that the center will be able to supply about one-half the needs of the region for newly-trained staff during the next two years.

Middle East. An aviation safety program will be carried out in the Middle East where there are several small ICAO training centers, and where civil aviation problems of the various states are similar. Participants in the program will include an expert in personnel licensing and training, an expert in aircraft maintenance and certification, and a check-pilot examiner. They will help ensure the proper maintenance and continued airworthiness of aircraft, and will assist Middle Eastern states to improve their

training methods, the content of their training courses, and their standards for licensing personnel. Instruction will also be given in fire fighting and rescue training.

Afghanistan. Aviation activity has increased rapidly in Afghanistan since the arrival there of an ICAO civil aviation adviser in 1952. There are now frequent and regular transport flights to neighboring countries; a desirable internal development is held up by lack of trained personnel and facilities. The 1956 program provides for continuing advice to the government and for technical training already begun in radio operations and repair, meteorology and airport management. The Government has purchased considerable equipment and aid will be given in its installation and operation. Assistance will also be given in the construction of airports.

Egypt. The mission to Egypt will continue its work at the Civil Aviation Center at Almaza Airport, which until now has been mainly concerned with offering refresher training to existing employees, and with giving ab-initio training. In 1956 the mission will expand its activities to include on-the-job instruction of staff in the government aviation services and will aid in the installation of new radio equipment, which will also require an expansion of practical instruction in the field. The Center has for some time past been receiving students from neighboring states.

Ethiopia. ICAO has maintained a technical assistance mission in Ethiopia since 1951. In addition to advising the government on civil aviation matters, a civil aviation school has been established at Addis Ababa, training aircraft and engine mechanics, radio operators and maintenance personnel, air traffic controllers and meteorologists. The 1956 program will continue the work of the school and provide for more on-the-job training. Although more than 200 technicians have graduated from the school, the development of aviation in Ethiopia has been such that the supply of graduates has failed to keep up with the demand.

Guatemala. The Government has embarked on a vigorous policy of expansion of aviation throughout the country. In 1955 an ICAO expert on radio aids and communications gave assistance; in 1956 he will be joined by an aeronautical meteorologist and an aerodromes expert.

Indonesia. The Indonesian government has been given material assistance in providing the aviation services needed for the development of air transport in its territory. The assistance given so far is the first step in a major development plan covering radio communications, radio maintenance, air traffic services, aerodromes, etc. A large ab-initio training program has been set up and a permanent training center established. The main effort so far has been to supply staff for government air safety services. As these needs are filled and as Indonesians take over responsibility for training of replacements, an expansion of training in basic trades can be made. The Indonesian Aviation Academy, with the support of the government, has steadily trained local personnel in all aspects of civil aviation.

Iran. A mission of nine experts arrived in Iran in 1951 to give advice to the government on airline operations and to conduct training in meteorology, air traffic control, radio operation and radio maintenance. The 1956 program provides basically for a continuation of the training work being done by the ICAO mission, together with assistance in the development of air navigation facilities throughout the country.

Iraq. The 1956 plans provide for the continuation of the existing mission, including the assistance of a second air traffic services expert who was employed for only part of 1955. Help is being given in the organization of weather services, communications, airport lighting, and navigation aids, as well as air traffic control.

Lebanon. Provision is made for a continuation of the present mission, together with six fellowships for Lebanese nationals and a small amount of equipment for training. Emphasis will continue to be placed on the improvement of air traffic services, communications and meteorology. In addition the government desires to improve its safety program, centering on the inspection and maintenance of aircraft and the examination and licensing of pilots.

Syria. The Syrian mission, which has been operating since 1953, will be broadened in 1956 to help in the examination of airline pilots, and to provide advice on the inspection and maintenance of aircraft and on the organization and administration of Syrian Airways. The existing training program in air traffic services, radio operating, rado installation and maintenance and aeronautical meteorology, will be continued.

In addition to those projects listed above, technical assistance in the form of expert advice, training, and fellowships for study abroad will be given by ICAO to: Burma, Chile, China, Dominican Republic, Ecuador, El Salvador, Finland, Greece, India, Israel, Japan, Pakistan, Paraguay, Philippines, Saudi Arabia, Thailand, Venezuela and Yugoslavia.

Further information on the ICAO Technical Assistance Program may be obtained from the Public Information Officer, International Civil Aviation Organization, International Aviation Building, Montreal 3, Canada. Photographs illustrating the work of the missions are available for newspaper or periodical use.

AIR NAVIGATION MEETING

The Pacific Regional Office of the International Civil Aviation Organization held an Air Navigation Meeting in Manila between October 27th and November 25th, 1955. During the Conference, plans were prepared for the improvement in air navigation facilities, as well as in services and procedures designed to meet the current operational needs of international civil aviation in this area and the future requirements of high-flying turbine-propelled aircraft expected to be introduced within the next three years. The Conference recommended a major addition to the world's air route network connecting the West Coast of South America to Australasia, Oceania and the Far East. Altogether, 145 recommendations were passed which should insure the greater safety, regularity and efficiency of air operations throughout the Pacific region.

167 technicians, representing 17 states and four international organizations, attended this meeting which was presided over by Mr. Urbano Caldoza of the Philippines. The Secretary General was Mr. E. M. Asistores and the ICAO Senior Adviser was Mr. Alan Ferrier.

VERTICAL SEPARATION OF AIRCRAFT

The first meeting of a panel of experts in the field of altimetry commenced on February 14th, 1956, at the headquarters of the International Civil Aviation Organization. These experts have been appointed by the Governments of Australia, Brazil, Canada, France, Sweden, United Kingdom and the United States, as well as by the International Air Transport Association and the International Federation of Air Line Pilots Association.

Vertical separation is described as one method employed by air traffic controllers to allow more aircraft to make use of today's crowded airways; the panel was set up by the ICAO Air Navigation Commission as a result of concern which has been felt for some time about the accuracy of current separation methods, particularly at the high levels at which jet aircraft

fly. The panel will consider the use of new methods of vertical separation and of new types of instruments that may be developed for this purpose.

ICAO'S ABC

Since 1947, ICAO has been working on the current alphabet, i.e. the alphabet composed of the words, *Able, Baker, Charlie, Etc.*, because it was realized that if difficulties were to be avoided, especially in the Spanish speaking areas, changes would have to be made.

In this connection, the help of Professor J. P. Vinay, University of Montreal, was invoked and during the years 1948 and 1949 considerable work went into various kinds of tests, with a view to replacing certain words or, if necessary, establishing a new alphabet.

As a result of this work, the following was adopted: *Alfa, Bravo, Coca, Dental, Echo, Foxtrot, Golf, Hotel, India, Juliett, Kilo, Lima, Metro, Nectar, Oscar, Papa, Quebec, Romeo, Sierra, Tango, Union, Victor, Whiskey, Extra, Yankee, Zulu.* It was thought that, at the time this alphabet was communicated to the various countries, i.e. 1952, this would eliminate most troubles and it was suggested that the period of one year be allowed for transition. However, contrary to what had been expected, many complaints were received from diverse sources which indicated that the alphabet proposed was more likely to cause trouble than the former one and again, it is understood, hundreds of thousands of tests have been made with a view to eliminating confusion under conditions of noise and disturbance.

As a result of the latest experiments, it is now suggested that, in the event of the majority of ICAO's members approving the following five new words: *Charlie, Mike, November, Uniform and X-ray* to replace the words: *Coca, Metro, Nectar, Union and Extra,* these new words will become operative as from March 1st, 1956.

OUTER SPACE SOVEREIGNTY AGREEMENT NEEDED

Agreement on the use of outer space by the nations of the world have to be reached soon, according to a report which will be put before the Assembly of the International Civil Aviation Organization when it meets in Caracas, Venezuela this June. The report, which describes the activities of ICAO in the field of air law, points out that there is good reason to believe that "mechanical contrivances" will travel beyond the earth's atmosphere in the near future.

None of the rules which furnish legal guidance to states on problems of sovereignty apply to trips into outer space. The Convention on International Civil Aviation, which has been ratified or adhered to by all of ICAO's 67 member nations, gives each of these nations complete and exclusive sovereignty over the airspace above its territory, but it makes no mention of whether this sovereignty extends upwards beyond the boundary of the air. There is at present no United Nations Specialized Agency responsible for working out agreements on sovereignty and rights and privileges in this area, but the ICAO report notes that, as any space craft would have to pass through the atmosphere before it reaches outer space, ICAO itself will be interested in the matter.

II.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

TRAFFIC CONFERENCES — OCTOBER, 1955

On October 9th, 1955, the IATA Traffic Conferences completed their study of approximately 30,000 fares and rates, together with other commercial agreements, by which their 74 members will carry on the business

of scheduled international air transport during the traffic year commencing April 1st, 1956.

The major results of the Conferences were as follows:

—The price of basic international air transport service in tourist class will remain unchanged, despite upward cost pressures on the airlines.

—First class fares will be raised in many parts of the world by about 10 per cent in order to pay for more luxurious service for those who want it.

—While levels of general air cargo rates will be increased slightly in some areas, substantially lower charges for bulk shipments of specific commodities will be continued.

—Fares and rates for new Polar route services between Europe and the Far East via the Arctic, starting in the Fall of 1956, have been made part of the worldwide pattern of agreement for the first time.

—The special off-season family fares over the North Atlantic which became effective on November 1st, 1955, will be offered again during the 1956-57 winter season.

—A new, simplified cargo rating system over the key North Atlantic route will be extended until December 31, 1956, without radical change.

Emphasis was laid on the fact that the IATA Conference agreements were voted unanimously by the delegates of airlines from more than 40 countries, and that none of these resolutions could become effective until approved by all interested governments.

In dealing with the resolutions which govern the application of fares and rates and their sale in 107 different currencies throughout the world, the airlines took a number of steps to simplify their tariffs and other commercial procedures in order to cut selling and handling costs and increase the amount of net revenue from the existing price structure. This included the abolition of the open-jaw discount, hardly noticeable to passengers, but of considerable importance to airlines.

Study Groups were set up to deal with the following problems: concerted action by the industry to expand air cargo; new promotional measures to increase off-season passenger traffic over the North Atlantic; integration of helicopter services into the existing commercial network; simplification of fares and rates rules; and remedies for the no-show and late cancellation problems.

Passenger Fare Levels

Under the terms of the Miami Beach agreements, international fares in North and South America will remain largely unchanged, as will international tourist fares throughout the world, except for a $10 increase on the mid-Atlantic route between Central and South America and Europe.

A very wide range of reduced fares for night services will be maintained inside Europe. An example is a new round trip fare of only £9.10 (about $26.25) between London and Brussels on night services.

Within the Middle East, the number and extent of "B" class fares—i.e. appreciably lower than tourist, will be increased. Low-cost excursion fares elsewhere will be revalidated.

While it has been possible to maintain price lines for basic transport service on tourist aircraft, it has been necessary to increase the charge for first-class service in order to meet the demands of those passengers demanding more luxury. First-class passengers have not been satisfied with tourist and standard services, e.g. they require sleeperette accommodation which

precludes an airline from carrying as many passengers as they otherwise would do.

With exceptions, first class fares will be increased by 10 per cent on many international routes. There will be no increases at all with the Americas or on routes from Australia to South Africa, Tokyo and New Zealand; and smaller increases, running about 5 per cent in first class fares between Europe and India and over Pacific routes.

Effective in April, the key international fare between New York and London will thus become $440 one-way and $792 return during the on-season and $742 round trip during the off-season for first class, and $290 one-way and $552 round trip in the on-season and $482 round-trip in the off-season for tourist class.

Sleeper surcharges for berth accommodation on all first class services will also be raised 10 per cent to $55.

Tourist Class. After study by traffic and engineering experts, the Conferences concluded that it is impossible at this stage to find an acceptable standard formula for tourist seating accommodation that will fit all the variations of existing and prospective aircraft. The Conferences were accordingly forced to agree upon stipulated minimum seating charts for 29 different aircraft types, from DC-3s to Brittania 300s.

Passenger Traffic Promotion. Because North Atlantic family fare reductions were scheduled to go into effect only last November 1st, 1955, the Conferences took no new steps to attract additional winter traffic on that route, beyond extending the plan to cover the 1956-57 off-season.

Further consideration will be given to promotional proposals, including special group fares for off-season travel on regular services.

No-shows and Late Cancellations. In an effort to reduce serious "no-show" losses (caused by passengers who fail to turn up for their flight or who cancel their reservations too late for the airline to sell their seats), the Conferences agreed to run statistical samples of booking situations in 26 companies during representative peak and off-season weeks to provide a basis for discussion of remedies at their 1956 sessions. The Working Group appointed to deal with this subject will maintain close contact with a similar group of the Air Traffic Conference of America which is trying to solve the same problem domestically for the United States.

Elsewhere, air cargo rates will remain largely unchanged except for increases of about 5 per cent on the South Atlantic route; and on routes between Europe and the Middle and Far East, excluding Australia and New Zealand; and, southbound only, from Europe to points in Africa.

The normal structure of specific commodity rates in the other regions will be continued, but several of the Commodity Rates Boards will be amalgamated for greater efficiency. They were also instructed to seek greater uniformity in commodity descriptions as between the various areas.

The special Cargo Development Working Group, set up a year ago, to outline concerted action by the scheduled airlines to expand air cargo traffic, will continue. In fact, the Group will be enlarged and concentrate on broad policy, rather than on rating and documents.

Work on the IATA Restricted Articles Code was also completed. This is the first universal agreement in transport history on the packing, labeling and stowing of goods requiring special handling and became effective generally from January 1st, 1956.

Cargo Rates Continued with Minor Changes

The new simplified system of North Atlantic cargo rates, which went into effect only two months ago, was revalidated by the Conferences for an additional 12 months, until December 31, 1956 with few changes. At the same time, the Commodity Rates Boards for the route were instructed to keep a close analysis of the results of the new system, which introduced substantial reductions within the framework of 50 broad categories of commodities.

Helicopters

Fares for helicopter services were voted into the worldwide tariffs structure for the first time by the Conferences, but a special committee of American and European operators of the new aerial vehicles was named to study how this new kind of service can best be integrated into the international commercial pattern. It is going to be necessary to discover ways of handling the combination of the two kinds of services, i.e. helicopter and fixed-wing, on interline journeys.

Simplified Fares and Rates Rules

A group of 12 traffic experts was asked to review the whole method of working out international fares and rates in order to make them easier to express, understand and apply; additionally, to stop "revenue leaks" in the present structure.

This group in their review will cover the tariffs of specified fares and rates as well as those which are constructed by rule for indirect routings.

Message Procedure — AIRIMP

The Conferences adopted a new Reservations Interline Message Procedure worked out jointly by IATA and the Air Traffic Conference of America. Called AIRIMP, it will be used as between IATA airlines and between them and domestic U. S. companies as a uniform system of abbreviations and sequence of elements in reservations messages.

Action Subsequent to the Traffic Conferences

In February, 1956, the U. S. Civil Aeronautics Board announced that it intended to disapprove the proposed 10 per cent increase in first class fares over the North Atlantic and Pacific, and that it would permit the tourist fares to remain in effect only until December 31. The Conferences had proposed these fares for the normal traffic year ending March 31, 1957. CAB took the position that while the 10 per cent increase on first class offerings might in itself be justified, it felt that the tourist fares were too high and that tourist revenues were subsidizing first class services.

A number of other governments who had approved the Miami resolutions formally protested this action by CAB. Carriers pointed out to the Board that it would not be possible, between mid-February and the start of the new traffic on April 1 to reach and obtain government approvals of new agreements and to calculate new traffic for actual sales purposes. Meanwhile, their sales efforts for the Summer season were already begun and the effect of the CAB order would produce commercial chaos. The CAB therefore agreed to approve the Miami fares for a limited period until September 30.

As a consequence, it has been necessary to convene the 1956 IATA Traffic Conferences four months early—on May 29, instead of in September as in normal course—to deal with fares and rates for an 18-month period from October 1, 1956 until March 31, 1958; and to defer until the 1957

sessions consideration of a number of constructive projects which were to have been put to them this September.

III.

THE INTERNATIONAL CHAMBER OF COMMERCE

REVISION OF THE WARSAW CONVENTION

At the 85th Session of the ICC Council held on 26/27 October, 1955, a Resolution was passed noting with appreciation the sympathetic hearing which its representatives had received from the Diplomatic Conference called to revise the Convention for the Unification of Certain Rules Relating to the International Carriage by Air, signed in Warsaw in 1929.

The Council called upon Governments to ratify the Protocol adopted in The Hague in September 1955 at the Diplomatic Conference without delay.

IV.

OBSERVATIONS AND COMMENTS ON CASES

ALLEGHENY AIRLINES, INC., ET AL., VS. VILLAGE OF CEDARHURST, ET AL.

Civil Action No. 12680/1952 June 27, 1955. United States District Court, Eastern District of New York. (Ref.: W. Bruchhausen, U.S.D.J.)

This action involves the constitutionality of an ordinance prohibiting air flight over the Village of Cedarhurst below 1000 feet with the background of the legal concept, that is, state sovereignty versus federal sovereignty of usable air space. More specifically, this case concerns what—if any—air space below the altitude of 1000 feet the U. S. Congress has determined as navigable space, and subject to flight control.

The Administrator of Civil Aeronautics and the Civil Aeronautics Board intervened as Plaintiffs in the action, representing ten airline companies, the Port of New York Authority, the Airline Pilots' Association International and nine air pilots in their individual capacities, having interests in and concerning the so-called Idlewild airport as located in Queen's County, State of New York, instituted this action against the Village of Cedarhurst and various named defendants in their official and individual capacities for the aforesaid ordinance to be declared unconstitutional and void and enjoining the enforcement of this decree adopted by the Village of Cedarhurst situated within a mile of the Idlewild Airport.

Idlewild Airport was incorporated on July 1, 1948. It has ten miles of runways, each runway being one to two miles long. At present, eleven domestic and thirteen foreign carriers are engaged in services to and from this airport, one of the largest of the world.

According to the Civil Aeronautics Act of 1938, the Administrator and the CAB are empowered "to promote safety of flight in air commerce by prescribing and revising from time to time certain rules." Pursuant to the Statute, the aforesaid agencies adopted air traffic rules, controlling operation of aircraft throughout the United States, including the establishment of Civil Airways, comparable with a system of highways for surface traffic (14 C.F.R.). Each airway is a path of ten miles wide between two airports ranging from an altitude of 700 feet above the surface to infinity. The pilot in the aircraft is guided by radio navigational aid and a number of ground control devices located around and at the airports.

According to the above regulations, in the case where an aircraft approaches Runway No. 4 for an instrument landing, and misses it, the aircraft is required to climb straight ahead to 500 feet, execute a right

turn to a heading of 130°, climb out to the southwest leg of the Mitchell range and from thence to the Long Beach intersection. Such aircraft is then guided back to the Scotland Beacon for another approach to Runway No. 4. The Village of Cedarhurst is situated under at least one of these civil airways and, as the absolutely reliable testimony showed, under these circumstances, some aircraft necessarily fly over Cedarhurst at less than 1000 feet. Whether the pilot does so or not depends upon the precise point at which he "declares his missed approach," being the point along the instrument path leading to Runway No. 4 at which the pilot determines it is unsafe for continuance of the landing.

This technical problem involves the legal one in this action. Therefore, it is necessary to throw light onto the development of the Latin, though non-Roman maxim, "cujus est solum, ejus est usque ad coelum"—meaning, "he who owns the land owns the air space above it."

Has the landowner any rights in the air column above his property according to Roman Law? Academicians are divided on this subject, but probably the best conclusion was reached by Francesco Larodone whose opinion is that to the "Wording" of the Roman texts: the landowner enjoyed under Roman Law the ownership above his property at low altitudes (the height of buildings, of trees) and according to the "Spirit" of the Texts, such private control could be extended to any altitude (Francesco Larodone —"Air Space Rights in Roman Law," Air Law Review, Vol. 2, 1931, p. 455).

Regardless of divergencies in legal opinion on this subject, most lawyers agree that there was a territorial status of the Roman air space and the Roman State retained control above the surface of the earth. The legal development of these principles—the sovereignty—the private ownership—clearly indicate that since Roman times the sovereign states, by recognizing and protecting certain rights of the surface owners in the space above their land, claimed, held and exercised sovereignty in the usable air space above their national territories. The concept of state sovereignty creates logically the concept of usable air space control by the State, which naturally became, by powered flight, more and more crystallized. We have sufficient precedents in various Court cases from all over the world throughout the centuries to prove this principle.

The authority of the U. S. Congress to legislate in matters of commerce extending over State boundaries was conferred by Article I, Section 8, Clause 3 of the Constitution . . . "The Congress shall have power . . . to regulate commerce with foreign nations and among the several states . . ."

The clear reference to that power in connection with navigation by water was made by Justice Marshall writing for the United States Supreme Court: (Gibbons v. Ogden, 9 Wheat. 1 (1824)). "All America understands and has uniformly understood the word 'commerce' to comprehend navigation." Later and more recent cases in that Court have held that the said power of Congressional regulations includes all means and instrumentalities by which commerce is carried on, including traffic by air (Monongahela Navigation Co. v. U.S. 148 U.S. 312, 342 (1892); Braniff Airways v. Nebraska Board, 347 U.S. 590, 596 (1953)).

In 1926, by the adoption of the Air Commerce Act, the United States, although it did not attempt to fix the extent, but had legislatively declared its national air space sovereignty (Civil Aeronautics Legislative History of the Air Commerce Act of 1926 corrected to August 1, U.S. Gov't Printing Office (1943)). In Section 10 of the Act, the term navigable air space was defined as "airspace above the minimum safe altitudes of flight as prescribed in the Act." The House Committee commenting on the Act was of the opinion . . . that the Federal Government may assert under the commerce clause and other constitutional powers of public right of navigation in the

navigable air space regardless of the ownership of the land below and regardless of any question as to the ownership of the air or air space itself (Civil Aeronautics Legislative History of the Air Commerce Act of 1926, corrected to August 1, 1928, U.S. Gov't Printing Office (1943)).

The Civil Aeronautics Act of 1938 reasserted with still broader terms the principles of the Act of 1926. Title VI of the Act of 1938 (49 U.S.C. 551) entitled "Civil Aeronautics Regulations" providing in section 601 (9)(7) (49 U.S.C. 551 (a)(7)) that the Board is . . . "empowered and it shall be its duty to promote safety of flight in air commerce by prescribing and revising from time to time . . . air traffic rules governing the flight of . . . aircraft, including rules as to safe altitudes of flight . . ." This section of the Act of 1938 seems to be rooted in Section 10 of the Air Commerce Act of 1926 (49 U.S.C. 180) and also in Section 1(24) of the Civil Aeronautics Act of 1938 (49 U.S.C. 401(24)) which make the definition of navigable air space contingent upon the determination by the Board of the "minimum safe altitude" of flight. The Civil Aeronautics Board, according to the Act of 1938 prescribed the minimum safe altitude of flight and adopted the rule under Par. 60.17 . . . "Except when necessary for takeoff or landing no person shall operate an aircraft below the following altitudes . . . (b) . . . over the congested areas of cities, towns or settlements, or over an open-air assembly of persons an altitude of 1000 feet above the highest obstacle within a horizontal radius of 2000 feet from the aircraft . . ." The obvious meaning of this rule is that the minimum safe altitude for takeoff or landing is whatever altitude is necessary for these operations. The Court and the CAB interpret this in the same concept.

These aforementioned rules form the legislative legal and technical background and basis of the action in question.

The Defendants claim that air space below 1000 feet is not navigable air space and as such was not regulated by the Congress. Therefore, the Village of Cedarhurst has complete jurisdiction over it. The Plaintiffs pointed out Section 10 of the Air Commerce Act of 1926 (. . . "Navigable air space"). As used in this Act, the term "navigable air space" means air space above the minimum safe altitude of flight prescribed by the Secretary of Commerce under Section 3 and such navigable air space shall be subject to a public right of freedom of interstate and foreign air navigation in conformity with the requirements of this Act. Legal principles are reasserted in the Act of 1938, 49 U.S.C. 401(24), 403, 551(a)(7) with the power to make air traffic rules vested in the CAB, instead of the Secretary of Commerce.

The Defendants claim that by Para. 60.17, the CAB constitutes legislation and that legislative power is vested in Congress and in no other body by Article 1, Section 1 of the Constitution. The Defendants do not challenge the rule that the Congress may empower an administrative agency to set rules provided that the Congress declares its policy with sufficient clarity to enable the agency to fulfill the Congressional intent. The Board in this case—claiming that the Defendant—by failing to define or furnish a guide as to the meaning of "minimum safe altitudes," the Title of regulation, Congress permitted the said Board to make the law. The Plaintiffs and the Intervenors assert that the necessary standard is expressed and defined in the rather self-explanatory word "safe." The Plaintiffs sustained by the testimony of pilots and other experts that, although the aircraft using Idlewild, necessarily must fly over Cedarhurst below 1000 feet, they must never fly below 450 feet.

No satisfactory substitutes were suggested by the Defendants. The Defendants claim that the so-called August 1950 traffic pattern for Idlewild was illegally adopted. That pattern superseded an earlier one in effect

between February 3rd, 1949 and August 1950, providing for the routing of aircraft to and from Runway No. 4 over the old Valley Stream Airport to the north of and outside of the Cedarhurst area. Experience proved that the earlier pattern was unsafe, especially for certain types of aircraft operating under certain weather conditions. The new revised and adopted pattern, known as Regulation 60.18-2, serves "to promote safety" (15 F.R. 5046).

Furthermore, if the Ordinance, paragraph 4 of the Village of Cedarhurst which makes such flights unlawful would be enforced, it would result at times in the complete closing of the Idlewild Airport which for all practical purposes would cease to function.

The Defendant brought with much vigor into action the so-called air space reservation rule applied to Washington, D. C. as a prohibited air space above governmental structures, north of Washington National Airport, established by Presidential Order (E.O. 10.126, 15 FR 2867). The Defendant claims the same applied to the Cedarhurst area. The Plaintiffs alleged that the Cedarhurst area has not been legally designated as an air space reservation and they emphasized the great difference between the Washington National Airport and Idlewild. The first has mainly short haul operation, passenger load and cargo load totaling gross weight much lighter while the latter has the opposite characteristics in operations.

The Defendants erroneously contend that Administrative Order (TSO—No. 18) resulted in the digging of an air channel over Cedarhurst as low as 162 feet, without compensation to the underlying landowners. As it appears, this Administrative Order was issued as a means of identifying those structures of Cedarhurst of a safety measure following the rules, expressed in the Act of 1926, Section 2 of the 1938 Act (49 U.S.C. 402), which structures might endanger the navigation to and from the aforesaid airport. The Order apparently has no relevancy.

The contentions so made by the Defendant have no merit. The Ordinance of the Village of Cedarhurst is declared unconstitutional and void, and the Defendants are permanently enjoined and restrained from enforcing it. No costs are allowed.

PAUL J. DE DONGO, D.C.L., LL.M.,
Trans Canada Air Lines, Montreal.

CAISSE PARISIENNE VS. AIR FRANCE AND AIR LIBAN

Tribunal civil de la Seine, Paris, January 14, 1955.

Facts: Under a Warsaw contract of transportation concluded with Air France, Caisse Parisienne sent 16 gold ingots in 8 cases to Beyrouth. Air France flew the shipment to Cairo, where it was taken over and flown to Beyrouth by Air Liban. After arrival, the cases were weighed and handed over to the customs agents. With regard to one case, the latter falsely entered a weight deficiency of 15 kgs., against which the emplyoees of Air Liban charged with handling the shipment did not protest, nor did they inform their superiors or the consignee. When the cases were delivered, one ingot was wanting, probably having been stolen while the shipment was in charge of customs authorities. Caisse Parisienne claimed $16,370 from Air France, and the latter impleaded Air Liban.

The Court: If a shipment is lost while transported by the second of two successive carriers, the consignor has a right of action against the first carrier according to Article 30, para. 3, of the Warsaw Convention, and may charge him with a negligence committed by the second carrier's agents, without prejudice to the first carrier's right of recourse against the second carrier. The acts of Air Liban's employees at Beyrouth were held to constitute (at least) "des fautes lourdes équivalentes au dol" within the mean-

ing of Article 25 of the Convention. The transportation by air within the meaning of Article 18, para. 1, of the Warsaw Convention comprises the period during which the goods are in charge of the carrier, and the particular risks of air navigation cannot discharge the latter of his liability during the handling of the goods when the transportation is interrupted or after arrival until delivery to the consignee.

Remarks: There is no doubt as to the correctness of the application of Articles 25 and 30 of the Convention. The same, however, cannot be said with regard to Article 18, because it would seem that after the cases were delivered to the customs agents they were no more "in charge of the carrier" within the meaning of Article 18, para. 2 (similarly: Prof. Meyer in 1955 Zeitschrift für Luftrecht 328, and Dr. Georgiàdès in 1955 Revue française de droit aérien 443).

DR. WERNER GULDIMANN (Zurich).

MARTIN VS. QUEENSLAND AIRLINES PTY. LTD.

Supreme Court of the State of Queensland (Australia).

Full Court (Macrossan C. J. Mansfield S.P.J. Hanger J.)—10 August, 55.

This is the first case in Australian courts of record raising the question of the liability of an airline for the death of a passenger where the ticket purported to exclude any liability by the airline and whether such an exclusion of liability was void as against public policy. In cases dealing with other forms of transport the English and Australian Courts have refused to pronounce as unreasonable or against public policy contracts for carriage of passengers containing conditions diminishing or excluding a carrier's common law duty of care to his passengers, in the absence of statutory restrictions on the imposition of such conditions. This rule apparently differs from that in force in the United States—See e.g. Conklin v. Canadian-Colonial Airways Inc. 1935 U.S. Av. R. 97, Curtiss Wright Flying Service Inc. v. Glose 1933 U.S. Av. R. 26. The rule had been applied to carriage by aircraft by the Privy Council (whose decisions are binding on Australian Courts) in *Ludditt v. Ginger Coote Airways Ltd.* (1947 A.C. 233), a Canadian case.

The plaintiff's husband had been killed in the crash of an aircraft operated by the defendant on which he was a passenger. The Contract of Carriage comprised in a ticket supplied to the deceased before the flight, contained a comprehensive term excluding the liability of the defendant, reading (so far as material) as follows:

> "The passenger, his luggage and goods are carried entirely at his own risk and the carrier accepts no responsibility for damage, including death—arising out of or incidental to the said carriage—and the passenger for himself and his executors, administrators and dependents expressly renounces all claims against the carrier in respect thereof whether the same be due to or alleged to be due to negligence or misconduct on the part of the carrier or not."

The plaintiff's Statement of Claim alleged that the accident and the death of her husband was caused by the negligence of the defendant's servants. In an attempt to forestall the defense that liability for negligence was excluded by the contract, the plaintiff set out under the heading "Particulars of Negligence" in the Statement of Claim that the defendant was guilty of eight separate "breaches of statutory duty which it owed to the plaintiff" of which a typical example is:

> "The pilot and/or pilots of the aircraft made a turn to the left after taking off *contrary to the provisions of the Air Navigation Regulations.*"

The words in italics appeared in each of the eight items of particulars. This pleading in effect set up that the breach by the defendant of provisions of the Air Navigation Regulations itself created a right of action in favor of the plaintiff, quite distinct from negligence.

The airline company in its defense, as expected, denied any negligence or breach of statutory duty, and set up the terms of the contract as an answer to the claim. The plaintiff demurred to the defense on the ground that the contract did not by its terms exempt the defendant from liability for a breach of statutory duty, and that in so far as it purported to do so it was contrary to public policy and void.

The three issues raised on the argument of the demurrer before the trial of the action were therefore—

(1) whether any of the acts or omissions set out in the Particulars of Negligence, if proved, would establish a breach of a statutory duty owed to the deceased passenger.

(2) if so, whether it was competent for the defendant to contract out of liability for damages caused through a breach of the Regulations.

(3) whether the terms of the particular contract relieved the defendant from liability for the death of the plaintiff's husband.

A judgment was delivered by the Chief Justice, in which the other members of the Bench concurred. The great part of this judgment dealt with the first of the three questions referred to.

The Air Navigation Regulations are made under powers conferred by the Air Navigation Act 1920-1950 of the Commonwealth Parliament. The Regulations provide a comprehensive set of rules governing all aspects of air navigation. The matters alleged in the particulars of negligence were all breaches of these Regulations or, in one case, a direction in an Air Navigation Order made by the Director-General of Civil Aviation under authority conferred on him by the Regulations. Regulation 312(1.) provides that any person who contravenes or fails to comply with any provision of the regulations or a direction issued in Air Navigation Orders shall be guilty of an offense against the Regulations. Regulation 312(2.) provides that the owner, operator, pilot or pilot in command of an aircraft which flies in contravention of, or fails to comply with, any of the Regulations, including any direction in an Air Navigation Order, shall also be guilty of an offense against the Regulations. Rgeulation 313 provides that the penalty for an offense against the Regulations shall, unless otherwise provided, be a fine not exceeding £200 or imprisonment for any period not exceeding 6 months or both.

The Chief Justice said that the question was whether the legislature in creating statutory duties by the provisions of the Air Navigation Regulations had given to any person who suffers damage in consequence of a breach of those Regulations a right of action against a person guilty of the breach to recover compensation for the damage resulting from the breach, or whether the imposition of the statutory penalty provided for a breach of the Regulations was the only remedy available. The fundamental principle laid down in the English authorities was that where an Act creates an obligation and enforces the performance in a specified manner, the general rule is that performance cannot be enforced in any other manner.

He cited with approval the following passage from the judgment of Atkin L. J. in *Phillips v. Britannia Hygienic Laundry Co. Ltd.* 1923 2 K.B. 832 at p. 841

> "When an Act imposes a duty of commission or omission, the question whether a person aggrieved by a breach of the duty has a right of action depends on the intention of the Act. The question

> is whether the Regulations, viewed the circumstances in which they were made and to which they relate, were intended to impose a duty which is a public duty only or whether they were intended, in addition to the public duty, to impose a duty enforceable by an individual aggrieved."

There was nothing in the provisions of the Air Navigation Regulations to lead to the conclusion that they were made for the special protection of any class of the public. The duties imposed by the Regulations were not duties enforceable by individuals injured by a breach of them, but public duties only, the sole remedy for which is the remedy provided by the Regulations themselves by way of fine or imprisonment.

The plaintiff had relied strongly on the case of *Hesketh v. Liverpool Corporation* (1940 4 All E. R. 429). In that case the plaintiff was injured through striking some trees when landing an aeroplane at night on an aerodrome under the relevant legislation. The trees in question were sited in breach of a condition in the license that no obstruction should exist in the line of flight within specified limits beyond the perimeter of the aerodrome, and were not indicated by red fixed lights as required by the legislation. Stable J. held that the presence of the trees constituted a breach of the statutory conditions and that on this ground the plaintiff was entitled to succeed at common law on the ground that the trees constituted a nuisance.

The Chief Justice pointed out that there appeared to be no specific consideration in the reasons for judgment of Stable J. of the point whether a breach of the statutory condition gave a civil right of action and the judgment can clearly be supported on the other ground. In fact the greatest part of the judgment deals with the defense of contributory negligence, and the question of whether the breach of the statutory condition gave a cause of action for damages does not seem to have been seriously argued. The Chief Justice therefore did not follow Hesketh's case.

It thus became strictly unnecessary to determine the second question but the Chief Justice nevertheless made some brief observations on the subject. He cited *Ludditt v. Ginger Coote Airways Ltd.* (supra) as authority for the proposition that a carrier of passengers has complete freedom at common law to make such contracts as he thinks fit enlarging, diminishing, or excluding his common law obligations, and observed that there were no statutory restrictions applicable to the facts of this case.

The Chief Justice also dealt with the third question very shortly, stating that in his opinion the language used in the contract clearly relieved the defendant from all liability for the death of the passenger.

FEDERAL REVIEW

OPINION OF THE GENERAL COUNSEL OF THE CIVIL AERONAUTICS BOARD AS TO WHETHER MEMBERS AND STAFF ARE REQUIRED TO TESTIFY CONCERNING STATEMENTS MADE DURING DELIBERATIONS BY ANOTHER BOARD MEMBER

MY OPINION has been requested concerning the above matter, and particularly as it relates to the questions addressed to Mr. Adams by the Chairman of the Anti-Trust Subcommittee of the House Committee on the Judiciary concerning Mr. Adams' recollection of a statement made by Mr. Denny during deliberations in the Board room relative to a conversation between Mr. Denny and Mr. Tipton, then General Counsel of the ATA. I conclude for the reasons hereinafter stated that the statement is privileged, and that Mr. Adams is not legally required to testify concerning the matter.

It is my opinion that the statement concerning which information is sought is a part of the decisional process of the Board. It is generally recognized that administrative agencies are privileged against inquiry into their deliberations and manner of reaching decision, including statements made during deliberations, and that administrative officers in this respect occupy a status analogous to that of a judge or jury. *United States v. Morgan*, 313 U.S. 409, 422 (1941); *Chicago, B. & Q. Ry. Co. v. Babcock*, 204 U.S. 585, 593 (1907); *National Labor Relations Board v. Botany Worsted Mills*, 106 F. 2d 263 (C.A. 3, 1939). Indeed, the Court of Appeals in the *Botany* case held that freedom from inquiry into statements made during deliberation is perhaps even more important to administrative tribunals than it is to the Courts because of the varying functions performed by them. The reasons for the privilege are succinctly stated in *Botany* as follows (106 F. 2d at p. 267):

> "The essence of the discussion of a common cause and the judgment ensuing upon that discussion must lie in freedom of expression. If those present during the discussion are aware that their sentiments, either tentative or final, may be revealed by their fellow participants, it is clear that caution or worse would remove all candor from their minds and tongues. The logic of this position requires the preservation from questioning of each member of the general body."

See, also, *McDonald v. Pless*, 238 U.S. 264, 268 (1915), wherein the Court held that inquiry into the deliberation of a jury would be "to the destruction of all frankness and freedom of discussion and conference."

The judicial decisions relied upon relate of course to demands for information made by private persons. However, there is no logical reason why the same privilege should not extend to inquiries by Congressional Committees. From a practical standpoint, there is just as much public policy behind the privilege in the one case as the other since the impact upon deliberation is the same irrespective of whether the disclosure of Members' statements comes at the instance of Congressional Committees or private persons. Indeed, because of the broad scope of the matters which the Congress investigates from time to time, it can perhaps be anticipated that there would be even more inquiry into such statements than presently is attempted by private parties asserting a right to access to the internal decisional process. In this connection, it should be noted that the Attorney General has ruled,[1] in a case involving the appearance of the Securities and Exchange Commission before a Committee of the Congress, that

[1] The ruling in the form of a letter to the Securities and Exchange Commission dated July 12, 1955, has been transmitted by the Commission to the Special

> "Any communication within the Securities and Exchange Commission among Commissioners or the Commissioners and employees is privileged and need not be disclosed outside of the Agency."

My basis for belief that the Board and its staff are privileged against revealing statements made during deliberation in a case in which the inquiry is made by a Congressional Committee does not rest entirely, or in this case at all, upon any claim of privilege of the Executive Branch of the Government. Some of the Board's functions, and particularly those involving foreign and overseas transportation embraced by Sections 801 and 802 of the Civil Aeronautics Act, 49 U.S.C. 601, 602, are believed to be "executive" in character. In the performance of its quasi-legislative and quasi-judicial functions not falling within the ambit of Section 801, however, I believe the Board to be independent of the Executive, and also independent of the Congress in making its decisions. As stated in relation to the Federal Trade Commission in *Humphrey's Executor v. U.S.*, 295 U.S. 602, 625, 626 (1935), the Congress in establishing regulatory agencies and vesting quasi-legislative and quasi-judicial functions in them intended to create

> "a body which shall be independent of executive authority, *except in its selection*, and free to exercise its judgment without the leave or hindrance of any other official *or any department of the government.*" (Latter emphasis mine.)

This view, as it relates to the Board, is strengthened by the reference to the *Humphrey's* decision in *C. & S. Airlines v. Waterman Corp.*, 333 U.S. 103, 108, 109, wherein the Court distinguished between the Board's functions in relation to Section 801 matters and those not requiring approval by the President.

My position is based on the grounds that, as an independent deliberative body created by the Congress, the Board is entitled to the same privacy and freedom from inquiry into statements made during the deliberations as is accorded to judicial tribunals. In short, when the Congress creates an independent tribunal required to deliberate and act as a body, it is my opinion that the grant of authority and duty to so act carries with it the right to privacy in deliberations. Such a right, including freedom from testifying as to statements made during deliberations, is essential to the effective functioning of the tribunal. There is nothing in the Civil Aeronautics Act which serves to deny the Board this right.[2] Further, I find no basis for any distinction in the privilege against disclosing deliberative statements based on whether the partcular action involved is "quasi-judicial" or "quasi-legislative," or whether it is "pending" or "closed." Rather, in my opinion the test is whether the action is one required to be taken after deliberation and judgment.[3] The matter here involved is such an action. Accordingly, I conclude that Mr. Denny's statement was privileged, unless the fact that the statement was made in a non-public "regular session" attended only by the Board and staff members serves to destroy its otherwise privileged character, or unless a waiver occurred because of Mr. Denny's own testimony.

Subcommittee on Government Information of the House Committee on Government Operations (See p. 436 of Committee Print of "Replies," dated November 1, 1955).

[2] The Congress obviously could have phrased the Act in such fashion as to have denied the Board this privilege. My task, however, is to render an opinion on the basis of the statute as I find it.

[3] In this connection, it should be noted that the *Morgan* case involved a rate matter, and yet the administrative proceeding was said to have "a quality resembling that of a judicial proceeding." See 313 U.S. at p. 422.

I find no suggestion of any distinction in cases relating to inquiry into the decisional process of administrative agencies between deliberative statements made in secret "executive" sessions attended only by the members of the agency, and statements made in "regular" non-public sessions attended by staff members, nor any distinction between staff and agency members in relation to the privilege. Neither, in my judgment, is there any logical basis for such a distinction. The testimony of staff employees as to what members said during their deliberations discloses internal views to precisely the same extent as testimony by members, and is equally objectionable. Further, a view that the staff can disclose, or that the privilege is destroyed when staff members are present, would mean that the Board would be required for its own protection to deliberate only in executive session without the benefit of the staff to answer questions. Such a requirement would serve to handicap agencies such as the Board, and would carry with it no public benefit.

Further, the privilege against disclosure of statements made during deliberations rests on public policy, and runs, I think, to the entire agency. As stated in the quotation from the *Botany* case, *supra*, there should be "preservation from questioning of each member of the general body." Moreover, the privilege extends to the Board as a whole, and it is well settled that the action of a single member cannot serve to bind the Board. Under these circumstances, it is concluded that no waiver of the privilege resulted from Mr. Denny's prior testimony.

FRANKLIN M. STONE

March 20, 1956

MID-YEAR REPORT OF THE STANDING COMMITTEE ON AERONAUTICAL LAW, AMERICAN BAR ASSOCIATION, FEBRUARY 1956

The CAA reports that during 1955 U. S. air traffic exceeded all previous growth records.

Passenger miles traveled on U. S. domestic and international scheduled airlines increased approximately 20% to 23,350,000,000. Business flying, estimated at 4,300,000 hours represented 10% gain over 1954, putting it even further ahead of scheduled airlines in hours flown. Pilot position reports to CAA traffic control facilities showed more than a 20% increase over 1954, almost doubling the 1953-54 rate of increase.

Significant developments in aviation law during 1955 are herewith summarized.

FEDERAL LEGISLATION

The year 1955 (84th Congress, 1st Session) was marked by the passage of highly important legislation providing for permanent certification of local service carriers. Public Law 38, approved May 19, 1955, required the Civil Aeronautics Board to issue a certificate of unlimited duration to those local service air carriers qualifying under the Act, with a proviso empowering the Board to limit the duration of the certificate as to not over one-half of the intermediate points. Local service carriers had previously been operating under temporary authorizations varying from 3 to 7 years. The effect of the legislation is to assure the permanence of the main route structure, at the same time allowing the Board some flexibility in adjusting intermediate points to changing traffic needs. Pursuant to this legislation the Board awarded during 1955 permanent certificates of public convenience and necessity to fourteen local service carriers; namely, Allegheny, Bonanza, Central, Frontier, Lake Central, Mohawk, North Central, Ozark, Piedmont,

Continental (Pioneer), Southern, Southwest, Trans-Texas, and West Coast Airlines.

One of the drawbacks to the progress of local service carriers in the past has been the lack of a plane suitable to their needs, and the limited duration of their certificates has deterred interest in developing such a plane on the part of manufacturers. It is understood that since the passage of Public Law 38, five or more domestic aircraft manufacturers have expressed interest in developing such a plane and one line has an option on six Fokker F-27's for delivery in the fall of 1956 for local service use. Another local service carrier is making arrangements to buy two and obtain an option on two more of these planes.

In addition to the progress made in the development of more suitable aircraft for local service operations, the local service carriers have realized other tangible benefits from this legislation. Not only has there been a substantial improvement in the morale of airline employees who are now assured of opportunities for continuity of employment, but the heretofore difficult problem of financing has been made easier because banking institutions are more willing to lend money to carriers who are in business on a permanent basis.

Legislation was also passed making amendments to the Federal Airport Act. Public Law 311, approved August 3, 1955. The primary purpose of this enactment was to give the Secretary of Commerce annual contract authority for the purpose of making grants under the Federal Airport Act for the years 1956, 1957, 1958 and 1959.

In regard to legislation currently pending before the 84th Congress, 2nd Session, the omnibus aviation bills, S. 308 introduced by Senator Bricker, and S. 1119 introduced by Senator Magnuson, were the subject of extensive hearings during the year 1955. These bills in effect formed the basis for continuing the study by the Senate of the need for general revision of aviation laws which was begun with the introduction of the McCarran bill, S-2647 in 1953 (83rd Congress).

Companion omnibus bills were introduced in 1955 in the House, H.R. 4648 by Mr. Priest, and H.R. 4677 by Mr. Hinshaw. Hearings on these bills were begun in January, 1956 and were still under way at the time of this writing.

These four bills, while making extensive revisions of the law, nevertheless consist entirely of amendments to the Civil Aeronautics Act and in this respect differ sharply from the McCarran bill, which would have repealed the Civil Aeronautics Act in its entirety and substituted a new Act.

Among the other pending aviation bills the following may be mentioned:

S. 779, H.R. 295, H.R. 2017, H.R. 4657. Each permits the granting of free or reduced-rate transportation to ministers of religion.

S. 1192, H.R. 232, H.R. 3125. Each exempts air freight forwarders transportation of livestock and certain other commodities from regulation under the Civil Aeronautics Act.

H.R. 6908, H.R. 7444. Each brings stewardesses and other flight attendants within the definition of "airman," thus requiring them to obtain airman's certificates as a prerequisite to employment.

S. 1379. Amends the definition of "airman" in the Civil Aeronautics Act so as to authorize the exemption of certain supervisory mechanics from the necessity of obtaining airmen's certificates.

S. 1380. Authorizes the Secretary of Commerce to impose civil penalties for violations of the Security provisions of the Civil Aeronautics Act.

S. 1649, H.R. 6632. Each authorizes the Civil Aeronautics Board to impose civil penalties for violations of the economic provisions of the Civil Aeronautics Act.

S. 1462, H.R. 527, H.R. 3325. Each amends the Civil Aeronautics Act so as to overcome the effect of the decision of the Supreme Court in the "offset" cases, *Western Air Lines v. CAB*, 347 U.S. 67 (1954) and *Delta Air Lines v. Summerfield*, 347 U.S. 74 (1954).

S. 1990. Requires air carriers to provide transportation for additional baggage at air freight rates.

The beginning of the current year, 1956, was marked by the introduction of numerous bills on the subject of sabotage of aircraft, and the serving of alcoholic beverages on aircraft. H.R. 7907, H.R. 7908, H.R. 7921, H.R. 7957, H.R. 7958, H.R. 8133, H.R. 8134, H.R. 8135, S. 2792, S. 2829 and S. 2972, deal in various ways with the problem of sabotage and generally authorize the imposition of the death penalty for causing damage to aircraft and death to passengers while in flight. S. 2972 (Mr. Magnuson) was passed by the Senate on February 10, 1956.

H.R. 7922, H.R. 8000, S. 2845, S. 2979 and S. 3039 are designed to prohibit the serving of alcoholic beverages aboard to airline passengers while in flight.

Legislation in the field of safety regulations:

H.R. 8889 requires the Civil Aeronautics Board to issue separate regulations concerning traffic at La Guardia, Idlewild and Newark Airports.

H.R. 8890. Authorizes the imposition of criminal penalties for safety violations.

Legislation to aid carriers in buying new equipment:

H.R. 8902, H.R. 8903. Require the Board to disregard gains and losses realized on the sale of property in determining "all other revenue" under Section 406.

Legislation to authorize the permanent certification of additional air carriers:

S. 3163. Authorizes permanent certification of certain air carriers operating in Hawaii and Alaska.

S. 3164. Authorizes permanent certification of certain air carriers operating between the United States and Alaska.

Miscellaneous:

H.R. 8891. Prohibits jet-propelled aircraft from using airports located in densely populated areas.

Amendments to the omnibus bill, S. 1119, have been introduced which contain similar provisions to S. 3163 and S. 3164.

FEDERAL COURT DECISIONS

Review of CAB Orders

The Court of Appeals for the District of Columbia in *Lee v. CAB* (CA D of C 1955) 225 F. 2d 950 held that the Administrator of Civil Aeronautics is not a person "disclosing a substantial interest" in an order of the Board and, therefore, cannot petition the Court of Appeals to review such orders. The case involved an order of the CAB dismissing the Administrator's complaint to suspend certain pilots who refused to testify at an investigation of an accident in which they were involved. In *United Air Lines, Inc. v. CAB* (CA D of C 1955) 4 Avi. 17719, the Board had denied in part a motion of United for consolidation of certain route applications. The court held the orders of the Board were interlocutory and, therefore, not appealable. The court discussed the question in some detail and decided that the Board's ruling was not an "effectual disposition of rights" but was more in the nature of a procedural ruling within the general scope of the Board's authority to regulate its own procedures.

Air Tariffs

Despite the ruling of the CAB (CAB Docket 5573, Order Serial No. E7087; 3 Avi. 21562, 1952 and Regulation ER 159 amending Section 221.40 CAB economic regulations) that air tariffs limiting the time within which suits may be filed against the airlines by persons injured in the course of air travel are controlling, there are still some cases which began before the CAB ruling and which were passed on by the courts in the last year. In *Herman v. Northwest Air Lines, Inc.* (CA 2, 1955) 222 F. 2d 326, (Cert. denied 76 S.Ct. 84, 1955) the Court of Appeals for the 2nd Circuit held a one year limit for filing suit for persons injured was valid and enforceable. The District Court for the Northern District of Illinois held a similar provision requiring notice within 90 days and suit within one year to be invalid in *Turoff v. Eastern Airlines, Inc.* (DC ND Ill. 1955) 4 Avi. 17649.

Liability of the Federal Government Arising Out of Aeronautical Operations

Probably the outstanding action decided in 1955 involving this question is *Eastern Air Lines, Inc. v. Union Trust Co., et al.* (CA D of C 1955) 221 F. 2d 62, whch involved a crash between a Bolivian fighter plane and an Eastern plane at the Washington National Airport. The Court of Appeals in this case reversed a judgment in favor of the estate of one of the passengers on the Eastern plane and remanded the case for a new trial. The court found that the jury instructions had been erroneous because they permitted the jury to find Eastern negligent if the jury found that the plane attempted to land without receiving authority to make a landing. The court found from the record that Eastern had received landing clearance and a departure from the landing pattern of the type actually made was permissible once such clearance was given. The court further held that the operation of the control tower by the United States was not a governmental function and, therefore, the United States could be held liable for errors or negligence in the conduct of its tower operators. The U. S. Supreme Court granted certiorari on December 5, 1955, 24 Law Week 3153. With respect to the suit against Eastern Airlines the Supreme Court reversed the decision of the Court of Appeals which had reversed the District Court judgment in favor of the estate of one of the passengers. However, it upheld the Court of Appeals decision that the United States could be held liable for injuries sustained through the negligence of control tower operators.

U.S. v. Compania Cubana de Aviacion S.A. et al. (CA 5, 1955) 224 F. 2d 811 was one of a series of cases arising out of the collision of an air carrier and a military plane engaged in instrument flight training. The lower court found that the operator of the instrument flight training plane was negligent in failing to give the right-of-way to the air carrier and the Court of Appeals decided that the evidence sustained the findings.

In *U.S. v. Eastern Air Lines, Inc.* (DC ED NY 1955) 132 F. Supp. 787, an Eastern plane overran a runway and crashed into a CAA Administration Building. The court held that Eastern could not recover from the United States because the building did not constitute a hazard or nuisance and further held that the United States could not recover from Eastern because the evidence did not show that the pilot was negligent in the emergency situation that existed.

The United States was held liable for negligence in performance of an air-sea rescue operation by a coast guard helicopter in the case of *U.S. v. Lawter* (CA 5, 1955) 4 Avi. 17591. The court admitted that many coast guard operations were of an emergency type where the government could not be held responsible for negligence, but found that in the case before it, the coast guard was negligent in permitting an inexperienced man to

conduct the rescue where the services of an experienced man were readily available.

In *Williams v. U.S.* (CA 5, 1955), 218 F. 2d 473, a crash occurred during the testing of equipment alleged to be secret. The District Court found that the equipment was secret, relying on the statement of the District Attorney to that effect and on his own personal knowledge. The Court of Appeals held that the trial court exceeded permissible limits in finding exempt activity on such grounds and indicated that there would have to be much more substantial proof. The court went on to hold, however, that since plaintiff sued only on a *res ipsa loquitur* theory there was no basis for recovery and therefore the District Court was affirmed.

Liability of Aircraft Manufacturers

Northwest Airlines, Inc. v. Glenn L. Martin Co. (CA 6, 1955) 224 F. 2d 120 (certiorari denied, January 9, 1956, pending on rehearing), was a suit for damages caused by alleged negligence in the design and manufacture of Martin 202 planes. Immediately after the war, Northwest purchased ten of these planes and subsequently purchased fifteen more. On October 29, 1948, a 202 enroute from Chicago to Minneapolis crashed in a violent thunderstorm. Examination of the plane revealed a break in the left front wing spar. The plane had been flown 1,321 hours. On the same day a Northwest pilot flying another 202, which had been in the same storm, noted difficulty in handling the plane and upon landing at Minneapolis reported this to the maintenance crew. Examination of the plane revealed a break of the same spar in the same general location. Northwest immediately grounded all of its 202 planes and examination of the planes showed fatigue cracks in the wing spar in several of the planes with flying hours in the range of 500-1200. The planes should normally have a useful life of 20,000-25,000 hours. After grounding and examination, all of the 202 planes owned by Northwest were rebuilt, eliminating the difficulty. Northwest sought recovery of its expenses. The trial lasted for three months and the jury deliberated for ten days before returning a verdict in favor of Martin. Northwest appealed, contending: (1) it was entitled to a directed verdict on the question of negligence of Martin; (2) the question of assumption of risk should not have been submitted to the jury; (3) the question of contributory negligence generally should not have been submitted; (4) the question of contributory negligence on the ground that the planes were not equipped with radar should not have been submitted; (5) errors in the admission and exclusion of evidence; and (6) abuse of discretion by the trial court in failing to grant a new trial.

The Court of Appeals for the 6th Circuit decided that the question of negligence of Martin was properly submitted to the jury. The court pointed out that knowledge of stress and metal fatigue at the time the planes were built was not as well developed as it was at the time of trial. Also, the question of whether the design was proper was a very close one, and, therefore, one on which the jury was entitled to pass. The court held that it was error, however, to submit the defenses of assumption of risk and contributory negligence to the jury. Martin based its claim of assumption of risk and contributory negligence on the ground that several Northwest engineers and other personnel were at the Martin plant during the construction of the planes; that they had thoroughly examined the allegedly defective structure and that a witness for Northwest had testified that the design was defective and as such was open and obvious to any competent engineer with but a brief examination. The court compared the many thousands of engineer hours expended by Martin in designing and constructing the plane with the relatively small number of people which North-

west had at the Martin plant and also pointed out that the changes suggested by Northwest personnel were almost all concerned with minor modifications which would enable the planes to fit into Northwest's standard operating procedures. Therefore, the court said it was apparent that Northwest relied on Martin for primary safety of design and construction and there was no adequate evidence to warrant the submission of assumption of risk or contributory negligence to the jury. With regard to Northwest equipping its planes with radar, the court found that at the time of the accident it was extremely doubtful that there was any feasible radar system available for commercial planes and therefore Northwest could not be found negligent in failing to equip its planes with such facilities.

In *Smith v. Piper Aircraft Corporation* (DC MD Pa. 1955) 18 FRD 169 and *Jones v. Piper Aircraft Corporation* (DC MD Pa. 1955) 18 FRD 181, the court held that the plaintiff could amend the complaint to allege negligent testing, design and inspection of the plane even if the statute of limitations had run and even though the original complaint was based on breach of warranty and negligent manufacture because of defective material. The court also denied the plaintiff's motion to strike the affirmative defense that the accident was due to negligence of the pilot rather than to any defect in the plane. Plaintiff was required to answer request for admissions regarding an earlier suit in Alabama arising out of the same accident in which she had contended the accident was due to pilot negligence.

Unfair Competition in Use of Air Line Names

The Court of Appeals for the District of Columbia in *North American Airlines, Inc. v. CAB* (CA D of C 1955) 4 Avi. 17698 set aside an order of the CAB in which it required North American to cease using the name of North American Airlines, Inc. or any other combination of the word "American." The court held that there was no evidence that an appreciable number of prospective customers would be confused by the similarity of North American Airlines, Inc. and American Airlines, Inc. and therefore the Board had no authority to issue its order and the parties would be left to their ordinary civil remedies with regard to unfair competition. Certiorari granted by the Supreme Ct. Nov. 14, 1955, decision expected this term.[1] *North American Aircoach Systems, Inc. v. North American Aviation, Inc.* (CA 9, 1955) 4 Avi. 17801 was an action for injunction by North American Aviation, an aircraft manufacturer against an air transportation operator. The court found that North American Aviation, Inc. by use and publicity in connection with the word "North American" had given it a secondary meaning and use of the same name by the air coach operator was deceptive and confusing to the public. An injunction was therefore granted.

Service of Process

While the question of service of process is not limited to aviation law, the far-flung nature of aeronautical operations is such that the problems appear frequently in aviation cases. In *Scholnik v. National Airlines, Inc.* (CA 6, 1955) 219 F. 2d 115 (Cert. denied 349 U.S. 956, 1955) the plaintiff, an Ohio citizen, filed suit in Ohio against National Airlines, a Florida corporation, for injuries incurred in an accident on a National plane enroute from Havana, Cuba to Miami, Florida. Actually National operated no flights northwest of Washington, D. C. It did, however, have an equipment inter-change leasing agreement with Capital and Capital operated flights in and had offices in Ohio. Under some circumstances equipment and crews

[1] (See *American Airlines, Inc. v. North American Airlines, Inc.*, Docket No. 410.)

were exchanged so that through service could be provided between Cleveland, Ohio and Miami, Florida. The court held that this constituted sufficient relation of National's operation to the State of Ohio to permit service upon National by means of service upon Capital in Ohio. The Court of Appeals pointed out that a motion for transfer under Section 1404A was still available if trial in Ohio constituted an undue burden to National.

In *Kenny v. Alaska Airlines, Inc.* (DC SD Cal. 1955) 132 F. Supp. 839, plaintiff was a stockholder of Alaska and sued it in California. He had process served upon the Secretary of State under a statute permitting such service where a corporation operated within the state and did not have an agent for service. It appeared that Alaska did not conduct any flights in California but it was possible to purchase tickets on Alaskan flights through air carriers operating in California or through various ticket agencies operating in California. The court held that these facts did not constitute doing business in California by Alaska Airlines and therefore the attempted service of process in California was invalid.

FEDERAL ADMINISTRATIVE DECISIONS

Local and Trunkline Services

The CAB made provision for an unusually large amount of new air transportation services, many of which will be competitive, in a series of decisions which were rendered, or which became effective, during 1955. In fact, these decisions taken in the aggregate, seem to represent the most significant shift in CAB policy in the direction of authorizing new competition since the passage of the Civil Aeronautics Act in 1938.

In April 1955, the President approved the Board's decision in the *New York-Balboa Through Service Proceeding,* Orders E-9109 and E-9110. In that decision, the Board and the President authorized the extension of Braniff Airways' Latin American route northward from Havana to Miami for the purpose of making possible interchange flights with Eastern Air Lines on Eastern's New York-Miami route. Such an interchange of equipment at Miami will result in through one-plane service from New York, and other points on Eastern's New York-Miami route to Havana, Cuba; Balboa, Canal Zone, Panama; and other points in South America on Braniff's route, which has southern terminals at Rio de Janeiro, Brazil, and Buenos Aires, Argentina. The Board also indicated that it would approve, until 1960, a through flight agreement between Pan American World Airways and Pan American Grace Airways, providing through service over Pan American's route between Miami and Balboa, and thence south on Panagra's routes to points on the west coast of South America, subject to the condition that all such flights shall be through flights to and from New York City, the Miami-New York portion of the flights to proceed over the routes of National Airlines.

In July and August 1955, the Board, in Orders E-9395 and E-9506, approved agreements between Braniff and Eastern which provide for an interchange operation between those carriers as contemplated by the Board's decision in the Balboa case. In August it also approved, subject to certain conditions, agreements between National, Pan American and Panagra providing for the interchange operation between those carriers.

In June 1955 the President approved the Board's decision in the *Transatlantic Cargo Case,* Order E-9311. In that decision, the Board and the President granted Seaboard & Western Airlines (formerly a non-scheduled air carrier operating under exemption authority) a temporary certificate of public convenience and necessity authorizing scheduled service across the North Atlantic carrying air cargo only. The certificate, which is limited

to a duration of five years, authorizes air freight service between the co-terminals New York City, Philadelphia, and Baltimore, via intermediate points in Newfoundland, Canada and Ireland, and (a) beyond Ireland via intermediate points in the United Kingdom, Netherlands, Belgium and Western Germany to a terminal point in Western Germany; and (b) beyond Ireland via intermediate points in France and Switzerland to a terminal point in Switzerland.

In September 1955, the Board decided the *New York-Chicago Service Case* (Order E-9537, subsequently amended by Orders E-9692, E-9737 and E-9886). In this decision, the Board authorized additional and improved service in the New York-Chicago area. Specifically, the Board provided for the following certificate amendments: (1) Capital Airlines was authorized to provide unrestricted service between New York, on the one hand, and Detroit, Pittsburgh, Chicago and Toledo on the other hand; (2) Philadelphia was added to Capital's Routes 14 and 55, providing for new competitive service between Philadelphia and Cleveland, Detroit and other Michigan cities; (3) Buffalo and Rochester were added to Capital's Route 14 as intermediate points between Detroit and New York; (4) A previously existing restriction on United's services was removed so as to allow United to operate turnaround service between Philadelphia and Detroit; (5) Another previously existing restriction on United's services which prohibited service to Fort Wayne, Indiana, on flights serving Detroit or Toledo was removed; (6) United was also authorized to serve Pittsburgh on its Route No. 1 subject to certain long-haul restrictions, and temporarily to provide local air transportation between Chicago and Pittsburgh; (7) Detroit was added to TWA's transcontinental route as an intermediate point between New York and Chicago, subject to certain long-haul restrictions; (8) Northwest Airlines was authorized to operate unrestricted service between New York and Detroit, and Chicago was added as an intermediate point on its New York-Seattle transcontinental route, subject to a long-haul restriction; and (9) Eastern was given temporary additional operating rights between Pittsburgh and Akron, Cleveland and Detroit, subject to a long-haul restriction.

The Board at the same time issued a supplemental opinion in the *United Restriction Case* which had been deferred for decision with the *New York-Chicago Case,* in which it lifted previously existing restrictions on United's service from Chicago to Seattle and Portland which had prevented non-stop service between those points. The Board also issued a supplemental opinion on deferred portions of its Docket 1789, in which it extended Segment 1 of TWA's Route 2 from Cleveland to New York, subject to certain long-haul restrictions.

In November 1955, the Board decided the *Denver Service Case* (Order E-9735, as subsequently amended by Orders E-9759 and E-9887). In that case, the Board (1) extended Western Air Lines Route No. 35 from Denver to San Francisco/Oakland via Salt Lake City and Reno, subject to long-haul restrictions; (2) added Denver as an intermediate point on TWA's transcontinental Route 2, subject to certain restrictions; (3) added Kansas City as an intermediate point on United's transcontinental Route 1, subject to restrictions; (4) added a new segment to American's Routes 7 and 25 extending from San Francisco/Oakland to Chicago, thereby authorizing non-stop operations between those points and new competitive services between the San Francisco area and various eastern and midwestern cities on American's routes; and (5) amended Continental's Route 29 by adding a new segment running between Chicago and Los Angeles via Kansas City and Denver, subject to certain long-haul restrictions.

Also in November, the Board issued its decision in the *Additional Southwest-Northeast Service Case* (Order E-9758, as subsequently amended by

Order E-9915), in which it authorized additional and competitive air services between principal cities in the southwestern and northeastern areas of the nation, and to certain cities designated as Midway Cities lying between those two areas. The certificate of Braniff Airways was amended, with certain restrictions, to permit operations over a new segment between the co-terminal points New York and Newark, and the terminal point Fort Worth, Texas, via the intermediate points Washington, D. C., Chattanooga, Nashville, and Memphis, Tenn., Tulsa and Oklahoma City, Okla., and Dallas, Texas. This certificate amendment not only will provide additional service between the named cities, but will allow Braniff to provide new services to San Antonio, Texas. The Board also amended, again with restrictions, the certificate of Delta Air Lines, so as to authorize service beyond Atlanta, Georgia, to the co-terminal points New York and Newark, via the intermediate points Charlotte, N. C., Washington, D. C., Baltimore, Maryland, and Philadelphia, Pa., all beyond Atlanta being points never previously served by Delta. At the same time, the Board added another new route segment in the southwestern area of Delta's operations authorizing service, subject to a long-haul restriction, over Route 24 west of the intermediate point New Orleans, La., to the terminal point Houston, Texas, thereby authorizing Delta to provide non-stop services between Houston and points in the Northeast including Washington, Baltimore, Philadelphia and New York, as well as services between New Orleans and Houston on through flights. These awards will also allow Delta to render one-stop services between Dallas/Fort Worth and the Northeast.

The Board, in the *Southwest-Northeast* decision, also authorized important route additions for Capital Airlines. These consisted principally of an extension of Capital's Route 51 north from Washington, D. C., to New York/Newark via Baltimore and Philadelphia, and amendment of both its Routes 51 and 55 to permit service between New Orleans, La., and Atlanta via Birmingham and Mobile, Ala., subject to a long-haul restriction. These awards will enable Capital to operate services between New Orleans and New York not only over its Route 55 (via such cities as Chattanooga, Knoxville and Pittsburgh, as heretofore, and now also via Atlanta), but also over a route via such cities as Atlanta, Washington, Baltimore and Philadelphia. The awards also increase Capital's authority to serve such cities as Chattanooga, Tenn., and Greensboro/High Point and Charlotte, N. C.

In the same decision, the Board added Tulsa and Oklahoma City, Okla., to TWA's transcontinental Route 2, with certain restrictions, and also authorized for the first time service by TWA between Washington and Baltimore, on the one hand, and Philadelphia and New York, on the other, on its flights serving Tulsa and Oklahoma City. This award will enable TWA also to provide new one-carrier service between Oklahoma cities and Pittsburgh, as well as points in the Ohio Valley such as Detroit and Cleveland.

In the *Southwest-Northeast* decision, the Board also authorized American Airlines to serve Pittsburgh on its Route 4, subject to certain restrictions, so as to provide Pittsburgh with new long-haul service to the Southwest and West, and to serve Houston, Texas, subject to restrictions, so as to provide one-carrier service between Houston and Pittsburgh. The Board also authorized American to provide service to Columbus, Ohio, on a through routing to New York City. The Board also authorized Eastern Air Lines, for the first time, to carry traffic between Pittsburgh, on the one hand, and Atlanta, Mobile, Birmingham, Ala., and New Orleans, La., on the other. Finally, the Board also authorized Capital Airlines, in an application deferred from the *New York-Chicago Case*, to carry passengers and other traffic between Philadelphia and Pittsburgh.

Large Irregular Air Carrier Investigation

The Civil Aeronautics Board in November, 1955 (Docket No. 5132 et al) culminated a general investigation instituted in 1951 to determine future policy with regard to large irregular carriers (the so-called non-skeds).

After reciting that the irregulars represent a significant part of the nation's air transport system and concluding that the continued existence of their fleet is of real value in terms of the national defense, the Board declared its intention to liberalize the operating authority of those carriers. At the time this order was entered all of the applicants had not been heard with regard to their qualifications. Hence a decision on the nature and form of the authority to be granted and the identity of the carriers to receive that authority was deferred until after the Hearing Examiners complete hearings on the qualifications of the applicants and render their Initial Decision on that issue. However, an interim order permits all irregular carriers whose operating authority has not been revoked for economic violations of the Civil Aeronautics Act to provide service within the scope of the enlarged authorization pending further decision by the Board. The same order styles the irregulars "supplemental air carriers" and enjoins them to provide supplemental service not unduly competitive with the operations of the certificated carriers.

Specifically the new authorization (exemptions issued pursuant to section 416 of the Act) allows large irregular carriers to conduct:

(1) Unlimited charter operations on a plane-load basis for the carriage of passengers and property in domestic overseas, and territorial (except intra-Alaska) operations, and of property only in international operations; (2) charter operations for the carriage of passengers in international operations on an individual exemption basis similar to that which is set forth in the *1955 Transatlantic Charter Policy*, E-9221, adopted May 20, 1955; and (3) individually-ticketed or individually-waybilled operations by each carrier on a scheduled basis not to exceed 10 trips per month between any two points, except as to intra-Alaska operations and except as to the carriage of passengers in international operations.

Twentieth Century Air Lines, Inc., et al. Enforcement Proceeding Docket No. 6000 (July 1, 1955)

The Civil Aeronautics Board recently issued an order revoking the economic operating authority of four large irregular air carriers (Twentieth Century Air Lines, Inc., Trans National Airlines, Trans American Airways and Jacob Freed Adelman, dba Hemisphere Air Transport) for knowing and willful violations of sections 401(a) and 408 of the Civil Aeronautics Act and Parts 241 and 291 of the Board's Economic Regulations. These carriers were found to have operated in concert with each other and with several other entities (ticket agents, aircraft holding companies and fiscal agents) as integral parts of a combine, advertising and providing scheduled air transportation not authorized by the Board. In addition, the Board ordered four individuals, individually and as partners in several of the aforesaid aeronautical enterprises, to cease and desist from violating section 401(a) and section 408 of the Act. The Board found that they had engaged "directly" in air transportation through their own instrumentalities even though they were not the ostensible legal owners of the carriers involved.

Although respondents disavowed any violations of section 408, a major portion of their defense to the 401 charges revolved around the assertion that various amendments to the applicable regulations (principally the so-called ticket agency regulation forbidding agreements or arrangements whereby the collective air transportation performed or held out by several

carriers through a common ticket agent exceeds that each such carrier is authorized to perform) were invalid because they were promulgated without an adjudicatory hearing and thus resulted in an illegal diminution or modification of their operating authority.

The Board held, among other things, that the adoption of these amendments required no such hearing since they were rule making in nature and as such constituted a valid exercise of its powers under sections 416 and 205 of the Civil Aeronautics Act.

Reopened Trans Atlantic Final Mail Rate Case
Docket No. 1706 et al., Order No. E-9441
(July 28, 1955)

In examining the domestic operations of Trans World Airlines (TWA) to determine what profits, if any, were to be offset against the subsidy requirements of its international division for a past mail rate period ending December 31, 1953, the Civil Aeronautics Board refused to recognize approximately three million dollars set aside by TWA for payment of future taxes. The carrier contended that this tax accrual was appropriate and should be recognized for rate-making in view of the provisions of Section 124(a) of the Internal Revenue Code of 1950, which permits the amortization of "emergency facilities" for tax purposes over a period of five years rather than the longer normal period of depreciation based upon their expected usefulness. This special tax treatment, known as "rapid tax write-off," was extended by Congress as an inducement for business to join in the defense effort. TWA qualified for this special treatment by obtaining a certificate of necessity from the Office of Defense Mobilization, and thereafter set aside approximately three million dollars from earnings during the years 1951, '52 and '53 for payment of taxes it would incur between the end of the five year amortization period and the seven year depreciation period determined by the Board as the useful life of the aircraft.

In rejecting TWA's claim, the Board noted the subsidy provisions of the Civil Aeronautics Act, and pointed out that for the eight year past period the carrier's actual financial requirements were being adequately underwritten with subsidy, and that for the future period commencing January 1, 1954, TWA was self-sufficient and would not require subsidization either in its domestic or international operations. The Board concluded that to recognize this tax accrual in the past period under these circumstances would amount to subsidizing a legal obligation to be incurred at a time when the carrier did not require subsidy.

INTERNATIONAL CONVENTIONS

On September 28, 1955, at The Hague, Netherlands, twenty-six nations executed a Protocol to amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed at Warsaw on October 12, 1929. The United States has yet not ratified or signed the agreement. Pursuant to Article 22 it does not become effective until thirty signatory States have ratified it.

The Protocol amends Section 2 of the Convention to state that it does not apply to carriage of mail and postal packages. Paragraph 1 or Article 3 of the Convention is amended with respect to the issuance of a ticket and it is provided that the ticket is *prima facie* evidence of the conclusions and conditions of the contract of carriage.

Article 4 of the Convention is amended with respect to the baggage check. With respect to cargo, Article 5 of the Protocol requires that the carrier shall sign the air waybill prior to the loading of the cargo on board

the aircraft. Article 8 of the Convention listing the particulars to be contained in the air waybill is removed and replaced by a considerably shortened provision, and Article 9, relating to cargo loaded on the aircraft without an air waybill, or with an inadequate one, is also amended. The requirements that notice of the possible application of the Warsaw Convention to certain carriage be included in all traffic documents are somewhat modified in language and the amount of information required to be included in these documents is reduced.

The Protocol also amends Article 22 of the Convention raising the limitation of liability of the carrier to the sum of two hundred and fifty thousand gold francs ($16,600), but allows for a higher limit where negotiated by special contract between the carrier and the passenger. A provision is also included to authorize the awarding of attorney's fees and other legal expenses in addition to the 250,000 gold francs limitation. According to the terms of Article 13 of the Protocol, the limits of liability specified shall not apply if it is proved that damage resulted from an act or omission of the carrier, his servants or agents, done with intent to cause damage or recklessly and with knowledge that damage would result, provided that the employee was acting within the scope of his employment.

The Protocol also provides an extension of the time limitation within which a person must give notice of damage to the carrier, the time varying depending on whether the claimed damage is to baggage or cargo.

The Protocol contains other amendments to the Convention and of course there are procedural provisions in the Protocol providing for denunciation and ratification.

The position of the United States delegates has not been revealed although we are informed that their report has been written. It is expected that the view of the United States will be expressed in the near future.

According to the Department of State there has been one significant development during the past year in the status of bilateral agreements with Western European countries. On July 7, 1955 the State Department announced that it had signed an air transport agreement between the Federal Republic of Germany and the United States providing for the basic principles to govern air transport relations between the two countries and setting forth routes to be operated by their airlines. The agreement contains the fundamental principles relating to air transport operations which have been standard in air transport agreements negotiated by the United States and the United Kingdom in Bermuda in February 1946. Approximately 40 agreements have been concluded by the United States containing these principles.

Since the completion of negotiations, the subject of the agreement has been discussed by the airlines, the Civil Aeronautics Board and the Department of State at hearings before the Senate Committee on Interstate and Foreign Commerce. Subsequent to these discussions, the United States signed the agreement and tendered the agreement to the Federal Republic of Germany which has not formally ratified the agreement. It is expected that the Republic of Germany will take action in the near future.

STATE LEGISLATION

At the 1955 Annual Meeting of the American Bar Association in Philadelphia, August 22-26, 1955, the House of Delegates authorized the Standing Committee on Aeronautical Law to continue to study proposals from interested public and private groups regarding the need to revise existing State aeronautical statutes and regulations in order to recognize and permit the effective utilization of non fixed-wing aircraft.

In this connection, the members of both the Standing and Advisory Committees on Aeronautical Law have been supplied with copies of a memorandum prepared for the Helicopter Council of the Aircraft Industries Association of America, which has been distributed by the National Association of State Aviation Officials to all of its member state regulatory bodies. This memorandum discusses the major types of problems faced by helicopter operators in the majority of our States under existing statutes which were designed for the regulation of fixed-wing, not rotary-wing aircraft. It also suggests various ways in which those statutes may be revised in order to eliminate or alleviate these problems, without at the same time depriving helicopters and their operators of the promotional and developmental features of existing state laws.

MUNICIPAL REGULATIONS

Matters Relating to Local Jurisdiction Over Flight of Aircraft

The outstanding development in the field of municipal regulations since our last report was the decision in *Allegheny Airlines, Inc., et al. v. Village of Cedarhurst* (DC ED NY) on June 27, 1955 (132 F. Supp. 871), declaring unconstitutional and void the Cedarhurst (NY) ordinance prohibiting flights below 1,000 feet (coming into and leaving Idlewild Airport), and permanently enjoining defendants from enforcing it. In a well written opinion the court declares the basic issue to be whether Congress has pre-empted the field of regulation and control of the flight of aircraft, including the fixing of minimum safe altitudes for take-offs and landings. The court holds that Congress has pre-empted the field of regualtion of air traffic in the navigable air space, under the commerce clause of the Constitution. While the exercise of Congressional power in the field does not prevent the states from exercising their inherent powers outside the fields pre-empted by Congress, it does preclude the states from regulating those phases of national commerce, which, because of a need for national uniformity, demand that their regulation, if any, be prescribed by a single authority, and federal control of traffic in the navigable airspace includes the airspace through which aircraft necessarily fly for take-offs and landings at public airports. The court rejected defendants' claim that Congress unlawfully delegated its authority to the CAB to adopt a rule fixing the minimum safe altitudes of flight of aircraft.

In *Gardner v. Allegheny County*, 382 Pa. 88, 114 A 2d. 491 (1955) the Supreme Court of Pennsylvania held that the lower court was correct in dismissing defendants' preliminary objections to plaintiffs' bill in equity asking that repeated flights 15 to 30 feet above plaintiffs' houses in take-offs and landings be enjoined, citing Pennsylvania cases and *U.S. v. Causby*, 328 U.S. 256 (1946) which held that flights so low and so frequent as to be a direct and immediate interference with the usefulness of the land do constitute a "taking," and the fact that the path of glide by planes was approved by the CAB does not change the result.

Municipal Condemnation of Land Below Glide Path

In the same case, *Gardner v. Allegheny County*, 382 Pa. 88, 114 A 2d 491 (1955), the Supreme Court of Pennsylvania held that under Pennsylvania law the lower court erred in dismissing defendants' preliminary objections to plaintiffs' claim in a bill in equity for a "taking" of their property and for an award of the fair market value of the property taken because damages for such taking must be fixed under proceedings for the condemnation of land.

The Legislature of Pennsylvania on June 28, 1955 amended the law of that state to provide that an airport approach area includes all the area of a commercially licensed airport, extending 1,000 feet at a ratio of one foot of height for each 20 feet of distance, and 300 feet wide. It also imposed a fine of $100, or 30 days in prison, for erecting or maintaining any smokestack, flag pole, tank, radio station, tower, antenna, building, structure or obstruction extending above that inclined plane; each day's continuation to be deemed a separate offense.

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JUDICIAL AND REGULATORY DECISIONS

AIRCRAFT MANUFACTURER'S LIABILITY FOR DEFECTS IN CONSTRUCTION AND DESIGN

COURT decisions of the past two decades reveal interesting applications of tort doctrines in suits involving aircraft manufacturer's liability for construction defects. While subjecting aircraft manufacturers to strict liability on a warranty theory has never been seriously considered,[1] the courts have achieved a somewhat similar result in using negligence doctrines. An analysis of these decisions indicates that the aircraft manufacturer has great difficulty in avoiding liability for damages resulting from such defects. This conclusion was reached upon an examination of the defenses available to an allegedly negligent manufacturer; the standard of care imposed on a manufacturer for design and construction of airplanes; and questions of causation and burden of proof.

The recent case of *Northwest Airlines v. Glenn L. Martin*[2] affords an opportunity to observe the effectiveness of the assumption of risk and contributory negligence defenses to the manufacturer. In this case, the airline sued the manufacturer for alleged negligence in the design of a wing splice which broke during flight because of metal fatigue. The court refused to hold the manufacturer liable as a matter of law, but its defenses proved to be so inadequate that the effect of the decision was tantamount to the same result. Martin alleged as affirmative defenses, that Northwest in making an inspection of the plane (1) assumed a risk of a defect in design, or (2) was contributorily negligent in not discovering the defect, and (3) that Northwest was contributorily negligent in failing to equip the plane with radar.

With respect to the issue of assumption of risk, the record reveals that Northwest had every opportunity to know of and appreciate the danger of the defect,[3] which, as a matter of fact, one of its own independent expert witnesses had established as being "open and obvious." It is evident that in assumption of risk cases an objective standard of knowledge must be applied, and that a plaintiff cannot be heard to say that he did not comprehend a risk which should have been obvious to him.[4] Nevertheless, the court held that it was error to submit the assumption of risk question to

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[1] Since there is no contract between the manufacturer and the passenger, most courts would refuse to apply a warranty theory in actions between these parties because of the apparent lack of privity. Those cases which do not require privity of contract are usually confined to actions arising from the purchase of defective food. Prosser, Torts §84 (2d ed. 1955). See also Trans World Airlines v. Curtiss-Wright, 2 CCH Avi. (4th ed.) 17849 (N.Y.S. Ct., Dec. 1, 1955). The warranty theory may not be available even in manufacturer-airline litigation, where there is a contractual relationship, if the action for breach of warranty was excluded by the purchase agreement as in Northwest Airlines v. Glenn L. Martin, 224 F. 2d 120 (6th Cir. 1955), *cert. denied*, 24 U.S.L. Week 3184 (U.S. Jan. 10, 1956) (No. 538).

[2] *Supra*, note 1. This case is significant in that it is apparently the first aircraft manufacturer negligence case to reach an appellate court on an issue of substantive law.

[3] Northwest maintained a staff of engineers, inspectors, and other personnel at the Martin plant who studied and approved the design of every part of the plane before it was accepted. Upon completion, the Northwest staff reported to their office that the plane was "the most extensively tested plane in commercial aviation history."

[4] Prosser, Torts §55 (2d ed. 1955).

the jury, reasoning by inference that Northwest could not have known of the risk of danger.[5] Perhaps the underlying basis for the inadequacy of the assumption of risk defense in a negligence action against the manufacturer for defective construction is that it is almost inconceivable that an airline would operate a plane, which it must be taken to know was in danger of crashing because of so obvious a structural defect. Consequently, it would seem that since the court in the *Northwest case* did not give the question of assumption of risk to the jury, where such action would have been substantiated by the most favorable facts, the aircraft manufacturer cannot rely on this defense in the future with any degree of confidence.

In dealing with the defense of contributory negligence based on the failure to discover the defectively designed wing splice, two basic questions are present: Does the airline have a duty to inspect planes which it purchases? And if not, does an inspection by an airline obligate it to use due care?

In the *Northwest case*, the manufacturer conceded and the court stated that if the airline had not made any inspection of the plane at all, there would be no issue of contributory negligence. But this decision seems to be in conflict with *De Vito v. United Airlines*,[6] where the airline was held responsible to the passenger for not discovering an error in the manufacturer's instructions on the precautions necessary to meet the dangers of carbon dioxide gas used in fire extinguishers. However, this apparent divergency can be explained by the fact that while the airline owes the passenger a duty of inspection, it owes the manufacturer no such duty.[7] And, even though the airline fails to inspect and is adjudged guilty of sceondary negligence as to the passenger, it may recover such losses from a manufacturer who has been primarily negligent.[8] Consequently, the manufacturer cannot successfully impose a contributory negligence defense merely because the airline failed to make an inspection which may have uncovered the manufacturing error.

There remains the question of whether an airline is obligated to use care if it undertakes to make an inspection. The court, in the *Northwest case*, reasoned that since the fact that inspections were made in no way increased the risk of harm, the airline should not be penalized for attempt-

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[5] The court arrived at this conclusion from the following language (p. 126):

> The evidence that Northwest's representatives did insist upon changes whenever they saw any reason to be dissatisfied leads to the conclusion, at least by negative implication, that they saw no reason to criticize the wing joint. They had no reason whatever *not* to object to anything they might regard as hazardous, and, in fact had been expressly instructed by Northwest to insist on any changes they thought would increase the safety of the airplanes . . . There is no evidence that the danger lurking in the wing joint was so obvious to Northwest representatives who actually did observe it that they must be taken to appreciate that danger. (The emphasis is the Court's.)

[6] 1951 U.S. Av. R. 181, 98 F. Supp. 88 (1951). The pilot followed the erroneous instructions of the manufacturer and was overcome by carbon dioxide gas entering the cockpit, thereby causing the plane to crash.

[7] In the *De Vito case*, the passenger sued the airline who made a motion to cross claim liability onto the manufacturer. In that the passenger was a party to the suit, the airline was held to the duty of a carrier, which made it responsible for all but latent defects. Whereas, in the *Northwest case*, the airline settled the passenger's claims, and sued the manufacturer for its losses. The airline was held to the duty of a purchaser which does not require an inspection.

[8] Lewis v. United Airlines, 1941 U.S. Av. R. 245, 29 F. Supp. 112 (1939). American Airways v. Ford Motor Co., 1939 U.S. Av. R. 149, 1 Avi. 809, 17 N.Y.S. 2d 998, *aff'd*, 284 N.Y. 807, 31 N.E. 2d 925 (1935). Also, an airline can recover its losses caused by the negligence of a manufacturer regardless of the fact that in an action by a passenger injured in the accident "that same dereliction would not be a defense to it."

ing in its own interest to conform to a higher standard of care than that imposed on it by law. But the logical implication is that even a careless inspection would free the airline from liability. Such an inference seems to be contrary to the well known tort concept concerning *affirmative conduct*,[9] which provides that even in the absence of a duty, if a person attempts to aid another, and "takes control of the situation," he is regarded as entering voluntarily into a relation of responsibility, and hence as assuming a duty. Thereafter, he will be held for any failure to use reasonable care. However, since the affirmative conduct theory is usually utilized to construct a duty on behalf of a careless defendant, it is at best only analogous where applied to a contributory negligence situation. Also, it may be effectively argued that the airline did not take sufficient "control of the situation" to bring the affirmative conduct theory into play.[10] In any event, the court in the *Northwest case* made no attempt to reconcile its decision with this well established tort theory, and it seems safe to say that an airline will not be deemed contributorily negligent if it fails to discover a structural defect in making an inspection.

There have been recent developments in aviation safety where radar is used to prevent any encounter with thunderstorms. The manufacturer alleged that the plaintiff-carrier was contributorily negligent in not having this safety equipment. The court held that it was error to give this question to the jury, because it felt that feasible airborne radar was not then commercially available, even though the airline did not assign this as a reason in explaining why it was not installed. A look at the evidence introduced by the manufacturer on the issue of the commercial availability of radar seems to warrant a jury question.[11] However, such action may be construed as indicative of a judicial tendency to resolve tenuous questions of fact against the manufacturer for reasons of public policy which will be discussed later.

In the field of aviation as of 1938 certificates of airworthiness are required before a plane can be used for interstate commercial purposes.[12] At first blush it would appear that these certificates could be used as an absolute defense by a manufacturer when charged with negligent design or construction, but the contrary seems to be the result reached. Two questions should be considered in relation to certificates of airworthiness: Can such a certificate be successfully introduced into evidence? And if so, will it serve as a complete defense in a negligence action?

In *Maynard v. Stinson*,[13] the manufacturer attempted to introduce a certificate of airworthiness in rebuttal to an allegation of negligent design,

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[9] Prosser, Torts §38 (2d ed. 1955).

[10] The realities of the situation in the *Northwest case* support this conclusion. The evidence showed that the Martin 202 was an assembly of 75,000 parts. There were over five hundred Martin designing engineers on the project, and over 17,000 separate drawings were made. Over 2,000,000 man hours were expended on the design of the plane. By contrast Northwest never had more than three inspectors present at the Martin plant and only one aeronautical engineer.

[11] The record reveals that (a) Northwest's pilots had flown aircraft equipped with two types of radar; (b) the equipment which was then available had been tested by Northwest; (c) Northwest's communication's engineer conceded that radar equipment which was available at the time the plane crashed would have been of assistance; (d) Northwest's superintendent of meteorology, speaking as of the time of the crash, confessed that radar would be of assistance in circumventing a thunderstorm area; (e) One of the reasons Northwest decided not to install radar was that it was effective only 95% of the time.

[12] 52 Stat. 917 (1938), 49 U.S.C. §401-611 (1952).

[13] 1940 U.S. Av. R. 71, 1 Avi. 698 (Wayne County Cir. Ct., Mich. 1937). Recovery was based on the negligent design of the plane's carburetor and exhaust pipes which caused a fire.

but the court refused to receive it in evidence on the ground that the manufacturer had failed to adduce testimony from employees of the Department of Commerce as to the nature and extent of their examination.[14] The manufacturer could not produce the necessary witnesses because the counsel for the Secretary of Commerce refused to allow employees of the Department to testify,[15] and the individual who actually made the inspection could not be found. Consequently, it is not an easy matter to get these certificates into evidence because of the difficulty in producing corroborating testimony, but even when admitted, they do not constitute a complete defense to an allegation of negligence. In one such case,[16] the certificate was allowed, but only as some evidence of the qualifications of the operator and the machine, while in another it was held that air carriers cannot rely on government inspections as a complete fulfillment of their duty of care.[17] It may be concluded then that both the common law defenses of assumption of risk and contributory negligence, and the certificate of airworthiness are of dubious value to an allegedly negligent aircraft manufacturer attempting to avoid liability.

For obvious reasons, it was necessary to assume the aircraft manufacturer's negligence while considering the inadequacy of its defenses, and an inquiry into the duty of care required of a manufacturer in the design and construction of aircraft does not appear to rebutt this assumption. That an aircraft manufacturer has a duty to use care has never been doubted,[18] but the crucial question is to the extent of that duty. The court in the *Maynard case* spoke of the manufacturer as only being responsible for those defects in its plane which an ordinary degree of care could have prevented. But "ordinary degree of care" is a legal term of art which requires translation into a comprehendible standard. The *Maynard case* defines the limits of both the knowledge and precautions required of the aircraft manufacturer, by holding the manufacturer accountable only for the knowledge and skill possessed by an airplane designer in the year in which the plane in dispute was designed. This has the effect of protecting the manufacturer from the admission of hindsight evidence on the issue of ordinary care.[19] Also, the court held the manufacturer answerable for taking those precautions which are commensurate with the damages which

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[14] The ruling accords with the hearsay evidence rule since the testimony of the parties making out and granting the certificate was theoretically available.

[15] An interesting question is whether the Department of Commerce would be liable for negligence under the Federal Tort Claims Act of 1946. Henry G. Hotchkiss, in *Aircraft Manufacturer's Liability and the Civil Aeronautics Act of 1938*, 16 Geo. Wash. L. Rev. 469 (1948), suggests that there is little doubt but that the granting or withholding of certificates of airworthiness calls for so high a degree of technical skill and, more important, technical judgment as to leave no doubt that it is a discretionary function, and not a ministerial one, thereby continuing the Government's immunity from a tort suit. See also Dalehite v. United States, 346 U.S. 15 (1953).

[16] Bolineaux v. City of Knoxville, 1937 U.S. Av. R. 145, 20 Tenn. App. 404, 99 S.W. 2d 557 (1935).

[17] Kamienski v. Bluebird Air Service, 1944 U.S. Av. R. 50, 321 Ill. App. 340, 53 N.E. 2d 131 (1944).

[18] Sellers v. Champion Spark Plug Co., 1929 U.S. Av. R. 61, 1 Avi. 126, 150 Miss. 473, 116 So. 883 (1928). This was perhaps the first case on the subject and was resolved on an issue of fact; demonstrating by inference that even at that early date the question of law was not deemed worthy of discussion by the court.

[19] This was acknowledged in the *Northwest case* when the court refused to permit the airline to use evidence of the modifications in the wing joint, made by the manufacturer after the damage was discovered, to show what the manufacturer should have done in the first place.

will likely result, if they are not taken.[20] Since the magnitude of possible harm in plane accidents is so serious,[21] it does not seem unreasonable to hold the manufacturer responsible for taking almost all possible known safeguards. Consequently, it may be deduced from the *Maynard case* that the care required of an aircraft manufacturer compels it to take any precaution which could have averted the defect responsible for the accident in question, unless such precaution was unknown to those ordinarily skilled in designing and constructing airplanes at the time.

The doctrine of *res ipsa loquitur*[22] has been useless in proving the alleged negligence of the manufacturer: first, because of a lack of expert knowledge concerning aviation hazards, and second, because of the absence of "exclusive control" in the manufacturer at the time of the crash. However, more recent decisions in passenger-airline litigation have held that the flight safety record now established justifies the conclusion that negligence is the most likely explanation when a plane crashes.[23] The "exclusive control" requirement has also been limited so that the manufacturer no longer need have actual control over the product at the time of the accident.[24] Consequently, future application of *res ipsa loquitur* to cases of negligence in the design and construction of aircraft would come as no great surprise.

Insofar as the defect responsible for the accident may not have been the result of faulty production, there is the question of who has the burden of proving whether the defective condition was caused by the manufacturer's negligence. This issue arose in *McCoy v. Stinson*,[25] a Canadian case, where there was some question as to whether a wing fitting broke as a result of improper welding by the repairman-defendant or for some other unknown reason. The court held that where the plane has been in use over a period of months, damage could happen which the manufacturer could not possibly prove in court, and consequently could not be held responsible for proving. The owner of the plane was held answerable for showing that the condition

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[20] In the language of the court (p. 72):

"Ordinary care in cases where the result of a slip will be slight and unimportant is not sufficient care to fill the requirements of ordinary care where the result of a failure to exercise it will be dangerous or destructive of human life."

[21] Prosser, Torts §84 (2d ed. 1955). Ordinary care is not considered solely in light of the magnitude of possible harm, but also in view of the probability of defects, the cost of effective inspection, and the customs of the business. However, magnitude of possible harm seems to be the determining factor in aircraft manufacturer cases.

[22] *Res ipsa loquitur* enables a plaintiff to present his case to the jury without specific allegations of negligence. The conditions usually stated as necessary for the application of the principle of *res ipsa loquitur* are three: (1) the accident must be of a kind which does not ordinarily occur in the absence of someone's negligence; (2) it must be caused by an agent or instrumentality within the exclusive control of the defendant; (3) it must not have been due to any voluntary action or contribution on the part of the plaintiff. Prosser, Torts §42 (2d ed. 1955).

[23] United States v. Kesinger, 190 F. 2d 529 (10th Cir. 1951); Lobel v. American Airlines, 192 F. 2d 217 (2d Cir. 1951). See McLarty, *Res Ipsa Loquitur in Airline-Passenger Litigation*, 37 Va. L. Rev. 55 (1951).

[24] There is now quite general agreement that the fact that the plaintiff is sitting on the defendant's stool when it collapses, or has possession of an exploding bottle, or a loaf of bread with glass baked inside of it, or is using an appliance, which the defendant has manufactured, will not prevent the application of *res ipsa loquitur*. Some courts have said that it is enough that the defendant was in "exclusive control" at the time of the indicated negligence. Prosser, Torts §42 (2d ed. 1955).

[25] 1940 U.S. Av. R. 84, 1 Avi. 698, Ontario Supp. (1938). Defendant welded a gusset onto a wing fitting of the plaintiff's plane which was found broken upon an examination of the wreckage.

which resulted in the crash could not have been introduced between the delivery of the plane and the accident. However, this is of little consequence in many cases, especially those involving improper design, where the defect is of such a nature that it can be easily traced back to the manufacturer.[26]

Many of the cases discussed in this article seem to be of such a technical nature that a jury will not always be capable of rendering a fair and considered judgment of the evidence. When one bears in mind the extent of damage to the plane and the difficulty of determining the causes of the aircraft crashes through examination of the wreckage, plus the possibility of fatigue and overstressing, etc., it is not difficult to conclude that such matters are beyond the realm of knowledge and experience of the average juror. A contemporary Canadian case declared that those cases involving the weighing and consideration of scientific evidence fall into the category which "is better tried by a judge alone, than by a judge with a jury."[27] However, the elimination of the right to trial by jury in ordinary civil actions in this country can come only by way of statute.[28] Consequently, the aircraft manufacturer's liability hinges on the ability of twelve untrained minds, depending at best on conflicting expert testimony, to decide questions of fact involving technical and complex concepts of aeronautical engineering. This is unfortunate, but a factor which the manufacturer cannot overcome.

It appears then that the courts, in disposing of aircraft manufacturer negligence cases with common law tort doctrines, are placing the brunt of the loss resulting from structural defects on the manufacturer. However, this seems to be a satisfactory solution in that it is identical with the conclusion arrived at when the same problem is approached from the viewpoint of public policy.

It is clear that the court, in the *Northwest case,* acted in the public interest in not allowing the manufacturer to base its common law defenses on the airline's inspection program. The purpose of the inspection was to aid in the production of safer commercial aircraft. Even though the accident was not averted in this case, such a program is undoubtedly beneficial in the aircraft industry as well as the public. But, if Northwest had been found guilty of assumption of risk in making the inspection, or of contributory negligence in not discovering the defect, then, more than likely, that would have spelled the finish of the inspection program. Thus it would seem highly improbable that any airline would risk liability by making an inspection which is beyond its legal duty.

But the *Northwest case* is not alone, for it seems that the public interest is being served whenever the aircraft manufacturer is found liable for losses resulting from manufacturing defects. This conclusion can best be explained on the grounds that the manufacturer is in the best position to prevent structural defects and distribute the loss.

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[26] The defects in the three leading cases were obviously of a manufacturing origin and there was no question of cause. In the *Maynard case,* the carburetor and exhaust pipes were too short; there was an error in the instructions on how to use fire extinguishers in the *De Vito case;* and, in the *Northwest case,* the wing splice was improperly designed.

[27] Nystedt v. Wings, Ltd., 1940 U.S. Av. R. 151, 1 Avi. 1036, 51 M.R. 63 (1940). The plaintiff was desirous of a trial by jury since a previous trial, Galer v. Wings, Ltd., 1938 U.S. Av. R. 177, 1 Avi. 778, 47 M.R. 281 (1938), by another passenger and arising out of the same accident, resulted in an adverse determination by a judge sitting without a jury. The facts of the case are briefly as follows: The accident occurred when the propeller blade sheared off near the hub. The judge felt that the failure was due to faulty design, but that the flaw was not known to those skilled in the science and art of designing planes at the time.

[28] Note, 16 J. Air L. & Com. 240 (1949).

The passenger obviously can neither prevent nor distribute the loss, but can only bear it alone, or refrain from air travel. The airline has the means to distribute the loss to the passengers, but is not in a good position to prevent it. Only the manufacturer can prevent its own errors by being more careful. But such care need not impede the making of changes and improvements which would benefit commercial aviation, for the manufacturer can distribute a reasonable share of the loss to the consumer in the form of increased prices. However, no manufacturer can afford to allow this loss to vastly exceed that incurred by a competitor. Therefore, a rather close balance should be achieved in that a manufacturer must be careful, but is not so restricted that it cannot risk technological advancements.

Thus it would appear that a manufacturer of commercial aircraft is held strictly liable for damages caused by defects in structure or design, for this result is achieved regardless of whether common law tort doctrines are applied or whether the decision rests on public policy considerations.

DIGEST OF RECENT U.S. CASES

STATE TAX ON FLIGHT EQUIPMENT—SITUS—INTERSTATE COMMERCE—DUE PROCESS

Braniff Airways, Inc. v. Nebraska State Board of Equalization and Assessment

74 Sup. Ct. 757 (June 1, 1954).

Petitioner, incorporated in Oklahoma and with home port at St. Paul, Minnesota, attacks the validity of a Nebraska statute imposing an apportioned ad valorem tax on its flight equipment in Nebraska where petitioner's airplanes make eighteen scheduled stops daily to discharge and load passengers and freight. The Supreme Court, finding no violation of the commerce or due process clauses of the U.S. Constitution, denied the petition for declaratory judgment and injunction. Federal regulation of air commerce, the Court stated, is based upon the commerce powers of Congress, not national ownership of the airspace, and the Commerce Clause does not immunize interstate air carriers from a fairly-apportioned, nondiscriminatory state tax consistent with existing federal regulation set forth in the CAA. The Court found sufficient regular contact with Nebraska to establish a tax situs. Due process was satisfied since the tax was in proportion to the protection and benefits received by petitioner during the stopover of its planes in that state. In a dissenting opinion, Mr. Justice Frankfurter rejected the sufficiency of such contacts and viewed the Nebraska statute as an intrusion on the Commerce Clause.

POWER OF CAB TO SPECIFY AIRPORT AS TERMINAL POINT—NOTICE

City of Dallas v. Civil Aeronautics Board

4 CCH Avi 17,381 (D.C. Cir. May 20, 1954).

In granting authority requested by an airline to operate a new route segment, the CAB designated Dallas and Fort Worth, Texas, as a single terminal point to be served through Fort Worth's airport located midway between the two cities. Petitioner argues that Dallas will not be well served by the airport and that the CAB is without authority under section 401 (f) of the CAA to make such designation. The court held that the CAB has authority to designate an airport rather than a city as a terminal point. As authorized by section 401 (f), the CAB order described "terminal points" and "service to be rendered." This designation did not constitute a "term, condition, or limitation" on the air carrier's right to control its schedules, equipment, and facilities. The court further found that there was sufficient notice to the parties that the issue of service through the Fort Worth airport would be before the CAB, although the issue was not specifically raised by the application for requested authority.

AIRLINE PASSENGER INSURANCE—VENDING MACHINES—COVERAGE

Lachs v. Fidelity and Casualty Co. of N. Y.

118 N.E. 2d 555 (Ill. Ed.) (Ct. of Appeals, N.Y. March 4, 1954).

Decedent purchased an insurance policy from an automatic vending machine situated in front of the airport ticket counter and bearing the sign "Airline Trip Insurance" in large letters. The policy's coverage clause,

however, limited coverage to "Civilian Scheduled Airlines." Decedent boarded a non-scheduled airliner and was killed in a crash. In an action by the beneficiary, the court denied defendant's motion for summary judgment, stating that the term "scheduled airline" is ambiguous. Defendant had the burden of showing that the term is susceptible of only one meaning, since the average person does not ordinarily distinguish between "scheduled" and "nonscheduled" airlines. Clarity in meaning, continued the court, was particularly essential in view of the use, location, and labeling of the vending machine.

PUBLIC UTILITIES COMMISSION—COMMON USE FACILITIES—RATES

Trans World Airlines, Inc. v. City and County of San Franisco

119 F. Supp. 516 (N.D. Cal. March 5, 1954).

Plaintiff airline leased from the defendant landing and take-off facilities at the San Francisco Airport. Twice during the lease, the Public Utilities Commission of San Francisco prescribed higher rates for use of the Airport than those fixed by the lease. The Court denied declaratory relief and directed plaintiff to account for unpaid charges. "Common use facilities" such as the plaintiff leased, asserted the court, constitute a public utility service which the city charter empowers the Commission to regulate. The lease agreement was valid when executed but binding as to rates only in the absence of regulation by the Commission acting on behalf of the public.

LIABILITY FOR CROP SPRAYING—DAMAGE TO PROPERTY

Pendergrass v. Lovelace

262 P. 2d 231 (New Mex. Sup. Ct. Oct. 9, 1953).

Defendant engaged an airplane operator who was an independent contractor to spray his infested premises. The owner of an adjacent cotton field sues for damages to his property resulting from the spraying. The court held the defendant liable relying on the exception to the rule that an employer is not responsible for the negligence of an independent contractor. Since the spraying involved use of a potentially dangerous solution, defendant could not delegate responsibility and escape liability.

TIME LIMITATIONS ON SUITS—TARIFFS FILED WITH CAB

Crowell v. Eastern Airlines

81 S.E. 2d 178 (N.C. Sup. Ct. April 7, 1954).

Before boarding the plane, plaintiff fell at defendant's airport premises and sues for injuries. The ticket folder provided that time limits for giving notice of claims and instituting suits were set forth in the carrier's tariffs. Plaintiff failed to comply with the time limit specified in a tariff filed with the CAB. The court held, by construing section 401 (a) of the CAA and CAB regulations, that neither the CAA nor the CAB require the air carrier to file such time limits. Therefore, plaintiff is not bound by unauthorized tariffs. Moreover, a mere reference by the ticket folder to limitations contained in the tariffs was not sufficient to bind the plaintiff. It was further held that there was no basis in the lease for requiring the city as lessor to indemnify the airline as lessee for such injuries.

AIR FREIGHT FORWARDER—REGULATION OF COOPERATIVES

Consolidated Flower Shipments, Inc.-Bay Area v. Civil Aeronautics Board
4 CCH Avi 17,387 (9th Cir. June 9, 1954).

Petitioner is a non-profit cooperative association incorporated under the Agricultural Code of California. Its exclusive business is that of a freight forwarder in the shipment of flowers in the San Francisco area. The CAB found that the petitioner was engaged indirectly in air transportation without qualifying to do so and issued a cease and desist order. In affirming the order, the court found that the evidence supported the finding of the public nature of petitioner's business and that it was engaged in air freight forwarding within the scope of CAB regulation. While certain cooperative freight forwarders in the rail and motor fields are specifically exempt from regulation under the Interstate Commerce Act, there is no such exemption in the CAA.

TRANSPORTATION OF SURFACE MAIL BY AIR—POWER OF CIVIL AERONAUTICS BOARD TO EXEMPT CARGO CARRIERS FROM CERTIFICATION PROCEEDINGS

American Airlines, Inc. v. Civil Aeronautics Board
2 CCH Aviation L. Rep. 17,948 (D.C. Cir., Feb. 9, 1956).

Plaintiff carrier held a certificate of public convenience and necessity which authorized the transportation of mail; it also carried *surface* mail under an experiment being conducted by the Postmaster General. Certain cargo-only carriers petitioned the Civil Aeronautics Board for permission to carry surface mail under the experiment program. They maintained that the Board had authority to permit this under Section 416 (b) of the Civil Aeronautics Act which provided for exemptions from the usual certification requirements for air carriers. The plaintiff contested these petitions, stating that the Board lacked authority to issue exemptions to these cargo carriers because there was no showing of "unusual circumstances," "undue burden," or "public interest" which the Statute required. The Post Office took the position that as additional volume of mail was anticipated, the Board should make available the additional facilities of the cargo carriers. The Board granted exemptions to the cargo carriers, and the plaintiff appealed. The court affirmed the decision of the Board, holding that the statutory requirements of "undue burden" and "unusual circumstances" had been met by a showing that certification proceedings had been instituted by the cargo carriers but would not be concluded in time to permit participation in the experiment program. Also, this experiment was clearly in the public interest. A dissenting opinion by Edgerton, C. J., concluded that the time required for certification proceedings was not an "unusual circumstance" within the meaning of the Act.

MUTUAL EXCLUSIVITY OF AIR ROUTE APPLICATIONS—JUDICIAL REVIEW OF CAB ORDER—APPLICATION OF ASHBACKER RULE

Delta Air Lines, Inc. v. Civil Aeronautics Board
2 CCH Aviation L. Rep. 17,817 (D.C. Cir., Oct. 24, 1955).

Eastern Air Lines filed an application with the Civil Aeronautics Board seeking certain modifications in its east-west routes and also additional north-south route segments for service between Cincinnati, Ohio, and Memphis, Tennessee. Delta Air Lines also applied to the Board to add service between these two cities. Delta maintained that the traffic between

these points would support only one service and that therefore the applications were mutually exclusive. Without the benefit of a hearing on this issue, the Board ruled that they were not mutually exclusive. Delta petitioned for review and asked for a stay of Board proceedings on the Eastern application. The Board proposed to conclude its hearing on the merits of Eastern's application and in its final order decide (1) whether any new north-south segments should be certified, (2) the exclusivity issue, and (3) if the application were not found to be exclusive, whether Eastern should be certified. The Board further contended that a "simultaneous decision" upon the two applications would satisfy the rule in the *Ashbacker* case. The court, however, felt that the Board's interpretation of this case would not sufficiently protect the rights of the second applicant, Delta. It held that the *Ashbacker* rule should be construed to mean that "where the applications of two qualified applicants for a license are as a matter of economic fact mutually exclusive, each applicant is entitled to a comparative hearing and consideration with his adversary. We think mere 'simultaneous decision' does not meet the requirement." The requirement for a comparative proceeding was meant to encompass all the "give-and-take of contesting parties, including cross examination, rebuttal, participation in prehearing proceedings, objection, briefs and arguments as contesting parties." Thus, the court held that the Board could not hear Eastern's application on its merits without hearing Delta and without first deciding finally whether Delta had a right to a hearing as a mutually exclusive applicant. The court ordered a stay of the application proceedings until a decision on the issue of exclusivity was reached.

LIABILITY OF CONTROL TOWER FOR CRASH ON ATTEMPTED LANDING UNDER ADVERSE WEATHER CONDITIONS

Smerdon v. United States

2 CCH Aviation L. Rep. 17,840 (D. Mass., Nov. 18, 1955).

Plaintiff, as administrator of the estate of the decedent, brought suit under the Federal Tort Claims Act for alleged negligence of the government-operated control tower in permitting a visual landing of decedent's plane in a heavy fog. The pilot of the plane involved was experienced and proficient in the use of instruments in ground-controlled landings. On the day when the accident occurred, he approached the Boston airport and was advised by the tower that weather conditions were extremely poor and visibility was below the minimum required for a visual landing. In addition, the tower's radar instruments were clouded by the precipitation to such an extent that an instrument landing was impossible. The pilot was advised of these facts when he was approximately six miles from Boston Airport, but he also received a weather report from the tower concerning a nearby airport where more favorable weather conditions prevailed. Mistaking this report for a description of conditions at the Boston airport, and seeing a section of its runway, the pilot requested visual flight clearance to make his landing. The tower granted the landing request and kept constant radio contact with the pilot. When the plane was a half mile from the end of the runway it entered a fog bank which engulfed it until it crashed into Boston Harbor, causing the death of the plaintiff's decedent. The plaintiff contended that under the safety regulation of the Civil Aeronautics Board the tower had a duty to the plane and its passengers to help them land safely, and it failed in this duty by authorizing the visual landing. The government replied that the tower only had the duty of clearing aircraft in control areas in order to prevent collisions. The court held that the tower did not have the responsibility of determining whether or not a given weather condition was safe for landing. The tower performed its

duty by furnishing official weather reports and clearing the air corridor selected by the pilot for his landing. It was not up to the tower to dispute the pilot's report of visibility, and therefore the court concluded that there was no negligence shown under these facts.

MUNICIPAL AIRPORT—CONTROL OVER PRIVATE ACCESS ROAD—DENIAL OF COMMON LAW DEDICATION

City of Oakland v. Burns

289 P. 2d 271 (Cal. District Court of Appeal, Oct. 31, 1955).

The City owned and operated an airport through its board of port commissioners. The principal roadway to the airport had been paved and maintained by the board, and it had been, and still was, open to the public at all times for access to the terminal building, hangars, and other installations. A City ordinance prohibited the operation of commercial ground transportation services to or from the airport in the absence of approval by the board. Pursuant to this and other regulatory ordinances, the board awarded an exclusive contract for the furnishing of transportation services to the airport to a specified carrier. The defendant was a competing carrier who held a certificate of public convenience and necessity granted by the Public Utilities Commission. This certificate gave him the right to provide limousine service to the airport over the most appropriate public streets and highways. The plaintiff City instituted this action to enjoin this service on the ground that the access road was a private road on airport property, and as such was under the exclusive control of the board. The defendant contended, successfully in the trial court, that this road had been dedicated to the public through its continued and open use over a period of 25 years. On appeal, *reversed*, on the ground that the City had no capacity to dedicate the road without following the statutory formalities for the opening of public streets. The court recognized that a municipal corporation may dedicate land that it holds as a private owner, but it held that the Oakland City Charter contained exclusive provisions with respect to the opening of streets which did not include dedication. The court also noted that an easement by prescription could not be acquired against a municipal corporation because the public as a whole had an interest in land set aside for general use.

MUNICIPAL AIRPORTS LOCATED IN ADJACENT TOWNSHIP—EFFECT OF LOCAL ZONING ORDINANCE

Aviation Services, Inc. v. Board of Adjustment of the Township of Hanover

119 A. 2d 761 (N.J. Sup. Ct., Jan. 9, 1956).

The plaintiff's lessor, the town of Morristown, New Jersey, had acquired a tract of land located within the boundaries of the defendant Township. This property was developed as the municipal airport of Morristown and a portion of the airstrip and buildings were leased to the plaintiff, an air flight school. Pursuant to an expansion program the plaintiff applied to the building inspector of the Township of Hanover for permission to reconstruct and enlarge the buildings it had leased. This improvement had been authorized by Morristown, but the application was denied by the Township on the ground that a local zoning ordinance had impliedly excluded airports from these residential areas. The plaintiff then filed a complaint which in substance contested the right of the Township to subject the Morristown Municipal Airport to its zoning ordinance. The trial court denied effect to the ordinance. On appeal to the Supreme Court of New Jersey the Township maintained that the airport was a public utility and therefore was exempt from zoning regulations only after specific findings of public neces-

sity by the state Public Utilities Commission. The court stated that an airport was not a public utility as defined by statute, but at any rate, the legislative authorization of municipal airports indicated an intent to immunize the acquisition and maintenance of airports from local zoning power. The policy of encouraging progress through local air facilities and the interest of the public in the use of these services demand a freedom from local restriction, but the court limited its decision by noting that it was not to be construed as giving judicial recognition to a program of wholesale aggrandizement of territory.

POWER OF LOCAL PUBLIC UTILITIES COMMISSION TO MODIFY MUNICIPAL CONTRACTS—COMMON USE FACILITIES AT AIRPORT

Trans World Airlines, Inc. v. City and County of San Francisco

2 CCH Aviation L. Rep. 17,866 (9th Cir., Dec. 19, 1955).

In 1942 the plaintiff Carrier and the defendant City entered into a formal agreement for a period of 25 years whereby the Carrier leased hangar and office space in the City's airport at a fixed charge. In addition, the lease covered certain "common use" facilities including landing fields, runways, aprons, and the like. In 1950 the Public Utility Commission of the City issued a resolution purporting to fix the charges for the "common use" facilities at a rate higher than that specified in the 1942 agreement; thereupon the Carrier brought a declaratory judgment action seeking to hold the City to the terms of its contract. The City defended on the ground that the 1942 agreement was superseded by the Commission's resolution, and this defense was sustained by the District Court. On appeal this judgment was reversed on the theory that California state law permitted a city to establish by contract the rates to be charged by an airport for a lease of this nature. The court recognized that under the California Constitution a state statute could not regulate a "municipal affair," but as construed, this term did not include the operation of a municipal airport. Thus, the court concluded that the City could not abrogate a valid contract expressly authorized by state law.

AIRLINE TRIP INSURANCE POLICY—COVERAGE DURING FLIGHT ON CONNECTING AIRLINE—NOTICE REQUIREMENTS

Commander v. Fidelity and Casualty Company of New York

2 CCH Aviation L. Rep. 17,852 (W.D. Va., Oct. 8, 1955).

An action was commenced on a standard air insurance policy by the beneficiary of the insured after the latter was lost in a forced landing at sea. The policy covered the insured "while riding in or on a conveyance . . . provided or arranged for, directly or indirectly, by (the) airline. . . ." In this case the insured had purchased a ticket from American Airlines for a trip from Newark, New Jersey, to Provincetown, Masachusetts, with a change of planes at Boston. It was during the flight from Boston to Provincetown, on the connecting airline, that the accident occurred. The beneficiary of the policy was the wife of the insured, and when she learned of her husband's death, she fell into a state of shock that lasted two or three weeks. The defendant was not notified of the loss until approximately two months after the accident. It resisted payment on two grounds: (1) that the term "conveyance" as used in the policy did not include a flight on a connecting airline, and (2) that the plaintiff had not complied with the notice requirements of the policy. The court held that the plaintiff was entitled to recover the face amount of the policy; the connecting flight was clearly covered by the terms of the policy, and the plaintiff gave notice to the defendant within a reasonable period after loss. The court pointed out

that as the policy had been drawn by the defendant, a liberal construction of its terms was to be afforded to the plaintiff.

WRONGFUL DEATH ACTION—IDENTITY OF PILOT ESTABLISHED BY PRESUMPTION

Drahmann v. Brink

2 CCH Aviation L. Rep. 17,918 (Ky. Court of Appeals, Jan. 27, 1956).

In an action brought for the wrongful death of a guest passenger in a private plane which crashed while attempting to land, the trial court directed a verdict for the defendant, the estate of the owner of the plane. The deceased, Brink and Drahmann, were business associates. Brink owned a private plane which he used for business purposes, and he invited Drahmann to accompany him on a business trip to Miami, Florida. Brink was a skilled and experienced pilot, while Drahmann knew nothing about the operation of aircraft. The plane was equipped with dual controls, only one set of which could be operated at a time. It was shown that Brink piloted the plane to Florida without event and was also operating the controls on the take-off for the return flight. The plane crashed, killing both occupants, in Atlanta, Georgia after a series of unsuccessful attempts to land at the airport in that city. Eye witnesses reported that on the first of these attempts the plane overshot the runway and executed proper maneuvers for regaining altitude. However, a second attempt on another runway was so improperly performed so as to indicate that it was not managed by an experienced pilot. As a result of numerous departures from proper flight procedure, the plane stalled and crashed to the ground. On appeal, the court held that the foregoing facts were sufficient evidence of gross negligence on the part of the pilot to warrant the submission of the case to the jury; furthermore, the identity of the pilot could properly be established by inference or rebuttable presumption. As all facts pointed to Brink's control of the plane, the court concluded that in the absence of contrary proof, he would be considered as the pilot of the plane, and the issue of his negligence would be determined by a jury. A dissenting opinion by Sims, J., pointed out that negligence can never be presumed, and the cause of this fatal crash, and whose negligence, if anybody's, was responsible for it, would be left purely to surmise and guesswork. He therefore felt that there was no issue which could be submitted to a jury.

DEFECTIVE AIRCRAFT ENGINES—SUIT AGAINST MANUFACTURER, SUIT AGAINST VENDOR

Trans World Airlines, Inc. v. Curtis-Wright Corporation

2 CCH Aviation L. Rep. 17,849 (N.Y. Sup. Ct., Dec. 1, 1955).

TWA purchased certain airplanes from the Lockheed Aircraft Corporation which carried engines manufactured by Curtis-Wright, the defendant. As a result of latent defects in these engines, they failed to operate properly and it was necessary for TWA to spend large sums of money to repair and restore them to working condition. TWA sued the manufacturer for these expenditures. The court held that the proper remedy in this situation was an action against the vendor of the airplanes, Lockheed, on an implied warranty theory, and not a suit directed toward the manufacturer. The basis for this holding was the fact that no accident had occurred as a result of the manufacturer's negligence. The court stated that no actionable wrong was committed if the danger caused by the manufacturer's negligence was averted; if an ultimate user were permitted to sue the manufacturers in such a case, "there would be nothing left of the citadel of privity and not much scope for the law of warranty." (See Note, this edition, for discussion of liability of manufacturers for structural or design defects. Ed.)

BOOK REVIEW

UNA HISTORIA CON ALAS, by Herbert Boy. Ediciones Guadarrama, Santa Catalina 3, Madrid, 1955. pp. 277, with index. Illustrated.

This interesting account of aviation enterprise in South America, written with the collaboration of Caballero Calderon, is an excellent counterfoil to Burden's "Struggle for Airways in Latin America."

We hear, in the English language, much about American air enterprises in South America. We know that, in the years of World War II, the European airlines yielded to American and local airlines. The story of those European early birds has not heretofore been available. In this book it is well recounted. Beginning with the days of training of young men from South America in the Rhineland before 1914, and their adventures in World War I, the Second Part recounts how these youths, with German fliers whose wings in Europe were clipped in 1918, betook themselves to Colombia and began the first romantic service between Barranquilla and Bogota, along the tortuous course of the Magdalena River, using Junkers F-13 flying boats, praised by General Mitchell for their "practicality." The Compania Colombo-Alemana de Transportes Aereos soon became familiarized as Scadta, and this is largely the story of that enterprise, which eventually, in World War II, was reorganized as Avianca—Aerovias Nacionales de Colombia. First the valleys and then the mountains, and then the great Amazon jungles had to be explored and conquered, with many adventures. Colonel Boy tells with special relish how the airport on the Rio Caqueta was established and finally named Puerto Boy. Part Three describes the peaceable expansion of the services; Part Four deals with the struggle with Peru concerning the jungle boundaries, and the conflict concerning Leticia, the port on the Amazon below Iquitos, and Tarapaca, to the north on the Putomayo. Then came World War II, and the lively cloak-and-dagger between Germans and Americans which finally resulted in the chapter "La Scadta se transforma en Avianca."

No air-minded person interested in the story of flying in the northern regions of South America will wish to miss perusing this lively and factual book. The Spanish is easy and fluent. The photographs are well-chosen; and the page depicting tres hydraviones and tres mulles pulling a street-car is amusing.

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